

THE NEW UNIVERSAL ENCYCLOPÆDIA

Introduction by

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VOLUME THREE

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K **AABA** Sacred shrine in the great mosque at Mecca. It is an irregular masonry cube, 38 ft. high, containing an oval stone, 6-7 in. across, of suggested meteoric origin. Venerated in Arabia before the time of Mahomet. The prophet declared that the angel Gabriel gave it to Abraham.

Kabbalah See CABBALA.

Kabul Capital of Afghanistan. It stands in a fertile district on the Kabul River, and has a caravan trade in carpets, silks and cottons. Here is an old fort and its modern buildings include several colleges. Once the capital of the ancient Mogul empire, Timur made it the Afghan capital in 1774. It was taken by British troops in 1831, and was again occupied by them, in 1842 and 1859. Pop. 100,000.

The Kabul River, which joins the Indus at Attock, is 270 m. long.

Kaffir Name adopted by Dutch and British settlers for African negroid peoples. It denotes more directly the Xosa, Pondlo and Tembu tribes, who constitute, with the Zulus, the Zulu-Kaffir division of the S. Bantu peoples.

The Kaffirs are formidable warriors between whom and the white settlers there have been many struggles. Following a war in 1809 there was almost constant trouble during the next 70 years, breaking out into serious wars in 1831, 1836, 1850-53, 1858 and finally 1877-78.

To-day the Kaffirs form a considerable element in the population of S. Africa, and are largely employed on the land, in the gold mines and in miscellaneous occupations. The word is an Arabic word meaning unbeliever.

Kaffir Bread Native farinaceous food. It is derived from the spongy pith of the stems of a S. African cycad, *Encephalartos caffer*. This tree, which is sometimes grown for ornament, often reaches 20 ft. in height.

Kaffraria District of the Cape Province, S. Africa. It is the coastal region between the Great Kei River and the border of Natal. British Kaffraria, farther south between the Great Kei and Keiskamma rivers, was at one time a separate province, but was included in Cape Colony in 1865.

Kailyard School Name given to writers of sentimental fiction about humble Scottish life. The term was originally applied by J. H. Millar, in reference to the song, "There grows a bonny briar-bush in our kailyard." S. R. Crockett, Ian Maclaren (John Watson), and Sir James Barrie have been included in this category.

Kaisariyeh City of Turkey, also called Kaisaria, or Caesarea. A road centre on a tributary of the Kizil Irmak. It manufactures rugs and carpets. It is the seat of Roman Catholic, Greek and Armenian bishops. Pop. 39,134.

A village of Palestine, alternatively called Caesarea, is known by this name. Built by

Herod the Great. It was once a magnificent city and seaport, being for a time the capital of the country. Here S. Paul was in prison for two years.

Kaiser Title of the Holy Roman emperors and, until 1918, of the rulers of Austria and Germany. It was first used in 800 for the Emperor Charlemagne, and after the dissolution of the Empire in 1806, was retained by the Emperor of Austria. In 1871 the King of Prussia also took the title, which was held by the two succeeding German emperors. The word means Caesar, and the feminine is Kaiserin.

Kaka New Zealand parrot (*Nestor meridionalis*). Rather smaller than its cousin, the kea, it is olive-brown in colour. It feeds on insects, besides extracting nectar from flowers. The eggs are laid in two hollows. It is sociable and can be tamed as a pet.

Kakapo Bird of the parrot family (*Strigops habroptilus*). Also known as tarapo, or owl parrot, it is a native of New Zealand, and is green, yellow and brown in colour. It nests in burrows, spends the day in holes in the ground, and seeks its food at night. The wings are not well adapted for flight, the birds usually moving on foot and in flocks.

Kalahari Desert of S.W. Africa. It stretches for about 600 m. N. of the Orange River, and covers some 120,000 sq. m. Impassable both in the dry and the rainy season, it is in places covered with vegetation. It is full of game and contains large deposits of salt. The few inhabitants are Bushmen who live by hunting.

Kajāt Native state of Baluchistan. It is ruled by a khan, advised by a British political agent at Kajāt, the capital. Its boundaries are Persia, India and the Arabian Sea. The land is mountainous, but much of it is very fertile. Area, 73,273 sq. m. Pop. chiefly Mohammedan, 328,000.

Kaleidoscope Optical instrument showing symmetrical forms produced by a combination of reflecting surfaces. In its simplest form, it consists of a tube containing two mirrors inclined to each other at 60°, with an eye-piece at one end, and at the other a glass cell containing pieces of coloured glass. These, by rotation of the tube and repeated reflection, give various symmetrical patterns.

Kalgoorlie Town of W. Australia. The centre of a rich gold mining area, it is a modern town and a railway junction on the Transcontinental Rly. It is 380 m. to the east of Perth. Pop. 5200.

Kalmuk Western branch of the Mongol stock. The Kalmuks, or Kalmyks, form an autonomous area in the union of the Soviet republics, the capital being Astrakhan.

Kamchatka Peninsula of Siberia. It lies between the Sea of Okhotsk and the Bering Sea, and it has been a Russian possession since 1766. The severe climate precludes agriculture, the sparse population living by hunting and fishing. Petropavlovsk is the capital.

Kamet Peak of the Himalayas. It is in the Gharial district of the

United Provinces, being the highest mountain in a northern branch of the Himalayas called the Zaskar range. It is the second highest peak in the British Empire (25,447 ft.).

Kamloops City of British Columbia, Canada. At the junction of the N. and S. Thompson Rivers, it is 250 m. from Vancouver. It is a junction on the C.P.R. and the centre of a mining and ranching district. It has railway workshops and lumber mills. Pop. 4,510.

Kanchenjunga World's third highest mountain. Situated in the Himalayas near the boundaries of Nepal and Sikkim, it is 75 m. from Everest. Its chief peaks, 28,150 ft. and 27,800 ft. high, can be seen from Darjeeling. In 1930 an international expedition ascended the mountain, but was compelled by the weather to return when it had reached a height of 24,400 ft. It has five peaks and the word means "the five treasure houses of the great snows."

Kandahar City of Afghanistan. It lies in a plain between the rivers Argand and Tarnak, 300 m. from Kabul, and commands a pass into India. The city is a trading centre, and owing to its position is an important fortress, surrounded by walls and having a citadel. It was occupied by the British in 1839 and 1879. Pop. 60,000.

Kandersteg Tourist resort in Switzerland. It is in the Bernese Oberland and stands nearly 4000 ft. high.

Kandy Town of Ceylon. Situated high among the mountains of the interior, it is 75 m. by railway from Colombo and is noted for its temples, especially the famous Buddhist Temple of the Tooth and its royal tombs. It was once the capital of the native kingdom of Kandy and was annexed by Britain in 1815. Pop. 32,600.

Kangaroo Family of pouched mammals indigenous to Australasia and New Guinea. The great grey kangaroo (*Macropus giganteus*) has a small head and large ears, with massive hindquarters and long legs. It measures about 5 ft. in length and can leap 30 ft. It is herbivorous and lives in herds. The female rears one young at a time in a pouch from the embryo stage until strong enough for independent life. There are also brush, rock, tree and rat kangaroos. The hide is valuable for leather, and the flesh, especially the tail, is eaten.

Kano City of N. Nigeria. The capital of the fertile province and emirate of Kano, it is an important trading centre, being the terminus of a railway from Lagos, and for caravans across the Sahara. Hides and ground nuts are produced, and leather, silk, and cotton goods manufactured.

Kansas Central state of the United States. A prairie state, it is watered by the Kansas and Arkansas rivers; the Missouri forms its N.E. frontier. Despite a scarcity of rain in the west, it is a rich agricultural state, producing maize, wheat and hay. Many minerals are worked. Topeka is the capital but Kansas City is the largest town. The state is governed by a legislature of two houses. It sends two senators and eight representatives to Congress. Area, 82,158 sq. m. Pop. (1930) 1,888,999.

Kansas City City of Kansas, U.S.A. It stands at the junction of the Kansas and Missouri rivers, opposite

Kansas City in Missouri. The largest city in the state, and, after Chicago, America's chief livestock centre, it is well served by railways and has some fine parks. It has slaughtering and meat packing establishments, flour mills, machine and railway workshops, grain elevators and factories for soap and candles. Pop. (1930) 121,857.

Kansas City City of Missouri, U.S.A. An important railway junction on the Missouri River, it is opposite Kansas City in Kansas, with which it is connected by railway and other bridges. An important distributing centre, its industries are chiefly concerned with meat packing, grain, livestock and milling, and the manufacture of clothing, confectionery and agricultural implements. Pop. (1930) 399,745.

Kant Immanuel German philosopher. Born in Königsberg, April 22, 1724, he was the son of a saddler. Scottish descent has been claimed for him. He studied at the University in Königsberg and became a tutor in a private family. In 1755 he was appointed lecturer in the university, becoming in 1770 Professor of Philosophy. In 1797 he retired and died Feb. 12, 1804.

Kant ranks as one of the most influential of modern philosophers. His teaching is contained in three books which have been translated into English as *The Critique of Pure Reason*, *The Critique of Practical Reason* and *The Critique of Judgment*. He examines the nature of reason which exists independent of experience. His conclusions are that there are three essential ideas: the soul as a thinking substance, the world as the totality of all phenomena and God as the absolute, perfect being. These ideas exist, however, only in the mind. His position is midway between that of the materialists and that of the idealists, though perhaps nearer to the latter than the former.

Kapok Tall evergreen tree of the family *Bombacaceae* and found in the W. Indies. It has a prickly stem and its leaves are divided into five or more lance-shaped leaflets. Its yellow flowers have an external coating of silky wool, and the woody capsules are filled with silky hairs attached to the seeds. These filaments are used as stuffing for pillows and cushions, and especially lifebelts for which the fibre is particularly suitable. An oil is expressed from the seeds.

Karachi City and seaport of Bombay, India. It was founded in 1843 at the western end of the delta of the Indus. It was for a time the capital of Sind. The city has a fine harbour and a large export trade in wheat. It is connected by railway with the Punjab and is an important air station. Pop. 216,900.

Karageorgevitch Reigning dynasty of Yugoslavia. Its founder was a Serbian peasant, Kara George (Black George) Petrovitch (1766-1817). Leading his countrymen against the Turks, he succeeded in throwing off the Turkish yoke, and was proclaimed ruler of Serbia, which, however, again fell into Turkish hands. In 1842 the crown was accepted by his second son, Alexander, but he was deposed in 1858. His son, Peter, became king in 1903, and after the Great War was made King of Yugoslavia. He was succeeded by his second son, Alexander, in 1921.

Karakoram Mountain range of Central Asia. Extending for over

KARELIA

400 m. across N.E. Kashmir, it connects the Himalayas with the Hindu Kush. In it is Godwin-Austen, 28,250 ft., the second highest mountain in the world. Several high but easy passes cross the range. In 1929 part of the range was explored by an Italian expedition.

Karakoram is also the name of an ancient Mongolian city. This was founded by Jenghiz Khan and was at one time the capital of the country. Its site was discovered in 1889.

Karelia Republic of Soviet Russia. It lies to the E. of Finland and covers about 52,000 sq. m., lying between Lake Ladoga and the White Sea. Petrosavodsk is the capital. Pop. 267,500.

Karlsbad Health resort of Czechoslovakia, formerly in Austria. It is now known by its Czech name of Karlovy Vary. It lies on the River Tepla, at a high altitude, among picturesque surroundings, about 70 m. N.W. of Prague. Its warm mineral springs which have been famous since the 14th century, attract a large number of visitors. The buildings include pump rooms and concert halls, and there are gardens and other attractions. There are porcelain works, kaolin being found in the neighbourhood. Pop. 37,000.

Karlsruhe Capital of Baden, Germany. It is about 6 m. from the Rhine and 39 m. from Stuttgart. It is a railway centre and is connected by canal with its port Maxau on the Rhine. The industries include railway engineering, furniture, jewelry, plated goods, gloves and brewing. Pop. 145,700.

Karma Sanskrit noun meaning a deed or action. When applied to the action of a living human being, it is the doctrine that every action, good or bad, receives its reward or punishment. Thus it is bound up with the theory of transmigration, apparently undeserved reward or punishment having been caused by the karma of a previous life. The doctrine is found in the Jain and Buddhist religions.

Karnak Village in Upper Egypt. Situated near the right bank of the Nile, near the modern village of Luxor, it contains some of the most famous ruins in the world. The chief is the great Temple of Amen-Ra, 1200 ft. long. The world's largest temple, it was begun by Senusert I., 12th dynasty, and was enlarged intermittently down to Ptolemaic times. It contains an incomparable hypostyle hall, with numerous scenic reliefs. Other monuments include two obelisks and vast pylons approached by avenues of sculptured rams.

Károlyi Michael Adam George Niklaus, Count. Hungarian politician. Born at Budapest, March 4, 1875, he entered Parliament in 1903, and in 1912 changed from Liberal to Radical views. After the outbreak of war in 1914, he tried to conclude a separate peace with the Allies. After the Hungarian revolution of 1918, Károlyi was made Prime Minister, and President in 1919. Unsuccessful in his peace treaty, he had to hand over the government to the Soviet of Bela Kun, and left Hungary for Czechoslovakia. He was found guilty of high treason and felony, and his estates confiscated.

Karri Australian tree (*Eucalyptus diversicolor*). One of the gum trees, it grows to an enormous size in the forests of W. Australia. On account of its hardness

the wood is much used for paving blocks and similar purposes.

Karoo Name given to a plateau of the Cape Province in S. Africa. It varies in height from 2000 to 4000 ft. above sea level. It is semi-arid in character but is healthy, and affords abundant food for sheep, both from the pasturage in the short wet season and the succulent shrubs of the dry period.

Kashgar City near the western border of Chinese Turkestan. The centre of a fertile area where grain, cotton, fruit, etc., are grown under irrigation, it is surrounded by barren mountainous country through which passes give access to India to the south and to areas north and west. The Zyzyl River runs through the city which, besides its trade, produces leather work, rough cotton and woollen cloth and has primitive oil refining. Pop. 80,000.

Kashmir Native state of India. It lies to the north of the Punjab and its borders also touch Afghanistan and China. A mountainous area covering 84,258 sq. m., it is traversed by the Himalayas and the Karakoram range, between which lies the fertile valley of the Indus, other important rivers being the Jhelum and the Chenab. The capital is Srinagar, Jammu being the next most important place. The people are chiefly Mohammedans, but the ruler, the Maharajah, is a Hindu. Agriculture is the chief industry and much of the land is forest.

In the Middle Ages, Kashmir under its own rulers, one of whom was Asoka, was a flourishing state. In 1581 it was made part of the Mogul empire, and later it was ruled by the Afghans and the Sikhs. In 1846 it came under British protection. In 1931 there was serious unrest in the state, British troops being sent to restore order. Pop. 3,320,000.

Kassassin Town of Lower Egypt. On the Suez Canal, it is 22 m. from Ismailia. Here, on Aug. 8 and Sept. 9, 1882, there were fights between the British forces and the Egyptians under Arabi Pasha.

Kassel Town of Prussia, Germany, the capital of the province of Hesse-Nassau. It is on the Fulda, 90 m. from Frankfurt-on-Main. There is a picture gallery with some notable paintings, several museums and a library with a fine collection of books and manuscripts. One of the museums, built in the 20th century, contains antiquities found nearby. Kassel has railway workshops, engineering works and manufactures of paper, etc. Pop. 171,700.

Katabolism Term used in biology for the physical and chemical changes in the living body resulting in the breaking down of the tissues into simpler substances. It is the opposite of anabolism, and these two processes are more or less balanced during normal life.

Katrine Lake of Scotland. Mainly in Perthshire, it extends to Stirling-shire, and is drained by the Achray and Black Avon, providing Glasgow with much water. It covers about 5 sq. m., and is famed for its beautiful scenery.

Kattegat Arm of the sea between Denmark and Sweden. It connects with the North Sea through the Skagorak and with the Baltic by means of three channels, called the Sound, the Great

Belt and the Little Belt, which are divided from one another by islands. It is about 150 m. long. Shoals and sandbanks make navigation difficult.

Katydid Name used for certain grasshopper found in N. America. They make a noise by stridulation which sounds like the words "Katy did."

Kauffer Edward M'Knight. American artist and designer. Born at Great Falls, Montana, in 1899, after an eventful life in America he began work at the Art Institute, Chicago, and then worked in Munich and Paris, and settled in London. He became expert at poster designing, and his boldness of design and keen sense of colour are found in the series of London's Underground Railway posters. His woodcut "Flight" (1922) is famous and he has edited *The Art of the Poster* (1924).

Kauffman Angelica. Swiss artist. She was born Oct. 39, 1741, in Switzerland. She studied art in Italy, and in 1766 settled in England, where she became known as a portrait and decorative painter. In 1768 she was elected one of the original members of the Royal Academy. With Reynolds and others she was chosen to decorate St. Paul's Cathedral, London; but in 1781, after her marriage with Antonio Zucchi, a Venetian painter, she left England for Italy. She died in Rome, Nov. 3, 1807. Some of her work is seen in the large houses of that time.

Kauri Pine New Zealand tree. It reaches a height of 100 ft., with a straight trunk up to 10 ft. in diameter; but large specimens greatly exceed these dimensions. It gives excellent timber, lasting and readily worked. Fossil gum, dug from old forest sites, is used for varnish making.

Kavalla Town of Greece. It lies on opposite Thasos Island; it has a good harbour and trades in tobacco. Bulgaria claimed Kavalla in 1913, thus bringing about the second Balkan War; but it was retained by Greece at the peace of that year. During the Great War it was occupied by the Bulgarians, and in Aug., 1916, was bombarded by British warships. It was given back to Greece in 1918. Pop. 50,000.

Kayak Eskimo canoe usually accommodating only one person. It consists of a wooden frame, about 18 ft. long and 2 ft. wide, covered with skins, which are arranged on the top so as to keep out water. Above modern boats are now common in places.

Kaye-Smith Sheila. English novelist. The daughter of Edward Kaye-Smith, a doctor at St. Leonards, she passed her early days in Sussex and soon gained a very intimate knowledge of the people there. In 1908 she published her first novel *The Tramping Methodist*. This was a success and others followed, dealing in the main with Sussex life. They include *Starbace*, *Sussex Gorse*, *Tamarisk Town*, *Green Apple Harvest*, *The End of the House of Atard*, *Saints in Sussex*, *Iron and Smoke*, *The Village Doctor*, *Shepherds in Sackcloth*, and *Susan Spray*. In private life Miss Kaye-Smith is the wife of Rev. J.P. Fry.

Kazakhstan Republic of Soviet Russia. It is in Central Asia and covers some 1,825,000 sq. m., Kryl-

Orda being the capital. It dates from 1924. Pop. 6,500,000.

Kazan Capital of the Tartar autonomous republic of Soviet Russia. It stands on the Kazan Ra, a tributary of the Volga. It is an industrial town, manufacturing soap, candles, leather, chemicals, etc., and is on the trade routes to the East. It has a university. Pop. 174,732.

Kea New Zealand parrot (*Nestor notabilis*). It is 17 in. long and has dull, black-edged, olive-green plumage. It frequents the mountains of South Island. Its partiality for the fat of the sheep leads it to attack the living animals, sometimes causing serious loss to farmers. It also feeds on the dead sheep. Its food at other times is fruit, seeds, insects and grubs.

Kean Edmund. English actor. Born in London, March 17, 1787. He earned a precarious living, as a boy, at fairs and circuses. In 1814 he appeared on the London stage, where, at Drury Lane Theatre, his Shylock made him famous. With equal success he played other Shakespearean parts, among them King Lear, Othello, Hamlet and Macbeth. He won successes also in plays by Massinger, Sheridan and other dramatists, and was probably the greatest tragic actor of his day. Twice he visited the United States where he had a great reception. In his later days he became very poor, owing largely to his extravagance, but he continued to play until his death at Richmond, March 25, 1833.

Other members of his family won renown on the stage. Kean's wife was an actress, and their second son, Charles John Kean, followed the same profession.

Kearsley Urban district of Lancashire. It is 3 m. from Bolton on the L.M.S. Ry. There are collieries in the neighbourhood and paper, cotton and bricks are manufactured. Pop. (1931), 47,361.

Keate John. English schoolmaster. Born in 1773, he was educated at Eton and King's College, Cambridge. In 1797 he became a master at Eton, and was appointed headmaster in 1809; under him many salutary reforms were introduced into the school. He is best-known, however, for the frequent and severe floggings which he administered to the boys. In 1834 he resigned. Since 1820 he had been a canon of Windsor, and he held also a living in Hampshire until his death, March 5, 1852.

Keats John. English poet. Born in London, Oct. 29 or 31, 1795, he was the son of Thomas Keats, the keeper of a livery stable in Finsbury. He was sent to school at Enfield and was then apprenticed to a surgeon at Edmonton. He became a dresser at Guy's Hospital in 1816, but soon left that profession. In 1817 he published his first volume of poems; in 1818 *Endymion* appeared, and in 1820 *Hyperion and other Poems*. Before this time his health had begun to fail. Never very strong, he was undoubtedly affected by the savage criticisms meted out, in the reviews, to his work, by the death of his brother, Thomas, and by his unrequited love for Fanny Brawne. In 1820 he left England for Italy, but soon after reaching Rome he died, Feb. 23, 1821. He was buried in the Protestant cemetery there.

The longer poems of Keats include *Hyperion*, *Endymion*, the unfinished *Lamia*, *The Pot of Basil* and *The Eve of St. Agnes*. His genius,

however, is best revealed in the shorter ones, notably such unique pieces as the odes *To a Nightingale* and *To Autumn*; the sonnet *On First Looking into Chapman's Homer* and the *Lines on a Grecian Urn*. With these may be mentioned the ballad *La Belle Dame sans Merci*.

Much has been written about Keats, whose circle of friends included Shelley and Hazlitt. As a poet he occupies a very high place, one which becomes more secure as the years pass. He is above all the poet of beauty. He was no scholar, but more than any other English poet he caught the Greek spirit which he understood and interpreted with unparalleled fidelity. Later poets owe much to his influence.

The house in Keat's Grove at Hampstead known as Lawn Bank, in which Keats lived from 1817 to 1820, is now a museum dedicated to him. The centenary of his death was celebrated in 1931.

Keble John. English poet and divine. Born at Fairford, April 25, 1792, he was the son of a clergyman. He went to Corpus Christi College, Oxford, and became a fellow of Oriel College. In 1815 he was ordained, and became a curate in a Gloucestershire village, but he retained his connection with Oxford, where from 1831 to 1841 he was Professor of Poetry. In 1835 he married and became vicar of Hursley near Winchester. He died at Bournemouth, March 29, 1866, and was buried at Hursley.

Keble has two claims to fame. He wrote *The Christian Year* which contains some very popular hymns including "Sun of my Soul," and he was one of the founders of the Oxford Movement, which is usually dated from a sermon preached by him at Oxford in 1833. He had a good deal to do with *Tracts for the Times*.

Keble College, in Parks Road at Oxford, was founded in his memory in 1870. The chapel, in which hangs Holman Hunt's "Light of the World," is notable.

Kedge Small anchor with an iron stock. Its uses are to steady a ship when riding in harbour or river, to keep her clear of her bower-anchor when the tide turns, and, cast from a small boat, to enable her to move by warping.

Kedgeree Mixture of rice and fish, augmented by hard-boiled eggs, melted butter or white sauce. In India, rice, spice and shredded onion cooked with butter and the dhal pea are compounded as kedgeree.

Kedleston Village of Derbyshire. It is situated 4 m. from Derby, and is notable for its connection with the Curzon family, who have lived here since the 11th century. Kedleston Hall, the seat of Viscount Scarsdale, is a fine mansion in the classic style designed by Robert Adam.

Keeley Mary Ann. English actress. Born at Ipswich in 1806, she acted under her maiden name of Goward before, in 1829, she married Robert Keeley (1793-1869). Both she and her husband were popular comedians, and she acted in Shakespeare's plays; also in plays adapted from some of Charles Dickens' novels. From 1844-47, the pair were managers of the Lyceum Theatre, London. She died March 12, 1899, at Brompton.

Keeling Islands Another name for the Cocos Islands (q.v.).

Keene Charles Samuel. English artist. Born in London, Aug. 10, 1823,

he was educated at Ipswich. After a spell in the office of his father who was a solicitor, he was apprenticed to a wood engraver. In 1851 he started to work for *Punch*, becoming a regular member of the staff in 1860, and it is for the excellence of his drawings in that journal that he is chiefly known, although he also illustrated several books. He died Jan. 4, 1891.

Keep Architectural term for the donjon or central portion of a mediaeval castle. It formed the living quarters and was the last refuge for the garrison in war time. The Norman keep was usually of the square type as seen in the White Tower of the Tower of London, but round and polygonal keeps were also common. The keep at Rochester is a fine example.

Keewatin Town of Ontario, Canada. With a station on the C.P. Rly., it is 130 m. from Winnipeg, on Lake of the Woods, and is visited for its fishing and shooting. Here is a large plant for generating electricity. Pop. 1300.

Keewatin was formerly a district of Canada. It had an area of 440,000 sq. m., and reached from the Arctic to Manitoba and Ontario, E. of Hudson Bay. In 1905 it was included in the N.W. Territories, and in 1912 parts of it were given to Manitoba and Ontario.

Keighley Borough and market town of Yorkshire (W.R.). It is 9 m. from Bradford and 20½ from London. It stands at the confluence of the rivers Aire and Worth, and is served by the L.M.S. and L.N.E. Rlys., and the Leeds and Liverpool Canal. The industries include the manufacture of woollen and worsted goods, textile machinery and sewing machines. Pop. (1931) 40,440.

Keith Burgh and market town of Banffshire. Old and New Keith lie on the east bank of the River Isla, with Fife-Keith on the west. They are united by two bridges. The town is served by the L.M.S. and L.N.E. Rlys. It has cattle, horse and sheep fairs, and the industries include brewing and distilling. Near are some curious stone circles and the ruins of Milton Tower. Pop. (1931) 4424.

Keith Name of a famous Scottish family, members of which were Earls Marischal for some centuries before 1716. Among its noted members was the soldier Francis James Edward Keith, a younger son of the 9th Earl Marischal. He fought for the Jacobites in 1715 and 1719, and afterwards served in the Spanish, Russian and Prussian armies. He was one of the most trusted generals of Frederick the Great, who made him a Field Marshal. He was killed in battle, Oct. 14, 1758.

A sailor, George Keith Elphinstone, bore the title of Viscount Keith. Born Jan. 7, 1746, he entered the navy and saw a good deal of service. In 1796 he defeated a Dutch fleet and took Capetown. He helped to put down the mutiny at Spithead in 1797, and served later against the French in the Mediterranean. In 1797 he was made a baron, and in 1814 Viscount Keith. He died March 10, 1823.

Keith Sir Arthur. Scottish scientist. Born at Aberdeen, Feb. 5, 1866, he was educated at the university there and later in London and Leipzig. He became a doctor, and from 1899 to 1902 was Secretary of the Anatomical Society. He was then made conservator of the Museum, and Hunterian Professor at the Royal College of Surgeons,

London. In 1921 he was knighted, and in 1927 became President of the British Association. He has been F.R.S. since 1913, and from 1917-22 was Fullerian Professor at the Royal Institution.

Kelth made himself a leading authority on anthropology, on which subject he wrote and lectured a great deal. His books include *The Human Body*, *The Antiquity of Man*, *Enigmas of the Human Body* and *The Religion of a Darwinian*.

Kelham Village of Nottinghamshire. It is on the Trent, 2 m. from Newark. Here is a factory for dealing with sugar beet which is grown in the neighbourhood. The fine hall is a theological college of the Church of England. Pop. 400.

Keller Helen Adams. American blind and deaf mute. Born June 27, 1880, she lost the senses of sight, hearing and smell when 19 months old. Anna Sullivan of the Perkins Institute of the Blind taught her to read by the deaf and dumb alphabet, also writing and typewriting. In 1890 she learned to speak. She graduated with honours Radcliffe College, Cambridge, Mass., and wrote several books including *The Story of My Life*, 1903, and *The World I Live In*, 1908. In 1932 she visited Scotland to receive honorary degrees at the universities.

Kellermann François Christophe. French soldier. Born in Alsace, May 28, 1735, he entered the French Army in 1752 and served in the Seven Years' War. Later he was given a high command in the republican army, and he was responsible for its initial victory at Valmy in 1792. He served under Napoleon in Italy and Germany. In 1803 he was made a marshal, and in 1808 Duke of Valmy. He adhered to the Bourbons after the events of 1814-15 and died Sept. 23, 1820.

Kellermann's son, **François Étienne**, rivalled his father as a soldier. Born in 1794, he entered the army, and in 1796-97 held a command in Italy. He distinguished himself at Marengo and fought in Spain and at Waterloo. He died June 2, 1835.

Kellogg Frank Billings. American diplomat and lawyer. Born at Potsdam, New York, Dec. 22, 1856, he was educated in Minnesota, and admitted to the Bar in 1877. He practised in Rochester and St. Paul, and was special counsel in the action to dissolve the Union Pacific and Southern Pacific railway merger. Elected to the Senate, 1917-23, in 1924 he became American ambassador in London, resigning in 1925 to become Secretary of State in President Coolidge's Government, until 1929. Here he won fame as the originator of the **Kellogg Pact**, or Pact of Paris, signed in 1928, a multilateral treaty for the outlawry of war as an instrument of national policy.

Kells Urban district of Co. Meath, Irish Free State. It is on the Blackwater, 10 m. from Navan, and has a station on the Gt. S. Ryds. Here the kings of Meath had a palace, and here in the 6th century S. Columba built a monastery. It was the seat of a bishop from 800 to 1300. The remains include S. Columba's House, a round tower and some crosses. Pop. 2200.

The book of **Kells**, the finest illuminated manuscript of Irish work extant, was written here in the 8th century. It is now in Trinity College, Dublin.

Kelmscott Press

Private printing press founded in 1890 by William Morris. Started in the Upper Mall, Hammer-smith, it was removed to Sussex House nearby, in 1891. It was named after the village of Kelmscott in Oxfordshire. Morris aimed at beauty in printing, and produced many remarkable volumes. The wood-blocks are now in the British Museum, London.

Kelp Name given to the porous ash obtained by burning seaweed slowly in shallow pits or special retorts. From it is obtained iodine and alkaline salts. Formerly this was a large industry in Scotland and Normandy, but has declined owing to the production of iodine from caliche in Chile.

Kelpie Scottish water sprite. It is said to appear at fords on stormy nights, frequently in the shape of a horse. It is malignant and bodes evil.

Kelso Burgh and market town of Roxburghshire. Situated at the junction of the Teviot and the Tweed, it is 52 m. from Edinburgh, and is served by the L.N.E. Ry. A fine bridge crosses the Tweed here. It is an agricultural centre, with corn and cattle markets, corn mills and a factory for agricultural implements. Kelso is famed for its Benedictine abbey, founded in 1128. Of this much of the church remains, and it is national property. Pop. (1931) 3855.

Kelty Town of Fife-shire. It is 8 m. from Dunfermline, on the L.N.E. Ry. It owes its existence to the opening of the coal mines in the 19th century. Pop. 7800.

The River Kelty is a tributary of the Forth, and runs for some distance between Perthshire and Stirlingshire.

Kelvin River of Scotland. It rises in the Kilsyth Hills and flows through Glasgow to the Clyde at Partick. Kelvinhaugh and Kelvin-grove are districts of the city named after it. In Kelvin-grove Park are the buildings of the university and the art galleries. The river is 21 m. long.

Kelvin Baron. Scottish scientist. William Thomson was born in Belfast, June 26, 1824, and was educated at the Universities of Glasgow and Cambridge. In 1846, after a brilliant career at Cambridge, he was made Professor of Natural Philosophy at Glasgow where he remained until 1899. From 1900 to 1904 he was President of the Royal Society. In 1892 he was made a baron, and in 1902 he was given the Order of Merit. He died Dec. 17, 1907, when his title became extinct.

As a physicist Thomson was one of the greatest of his time. He studied thermodynamics and then electricity and magnetism, and the results of his work were of the highest importance to industry. They helped to make possible the electric cable and he was responsible for many of the inventions that have extended the general use of electricity. His paper *On the Farther Atoms* and his lectures on molecular dynamics and the wave theory of light contain the results of much of his thought, and have exercised considerable influence on students of a later day.

Kemal Pasha, Ghazi Mustapha. Turkish politician. Born in 1882 at Salonika, he became a soldier. In 1915 he commanded the Turkish armies on the Gallipoli peninsula and afterwards made himself a very formidable



THE KEEP AT ROCHESTER.—An air view of the fine mediæval donjon or central tower at Rochester Castle.

[Hobart]

figure in public affairs. At the head of a group of nationalists he set up a government at Angora which, in 1922, was strong enough to abolish the office of sultan. At the head of affairs, Mustapha Kemal won a signal diplomatic victory when the Treaty of Lausanne, in 1923, restored to Turkey much of the territory she had lost. In the same year Kemal was chosen president of the republic, which, under his strong rule, made great progress. He was still president in 1932.

Kemalists

Turkish nationalists, followers of Mustapha Kemal Pasha. In 1920 the Kemalists set up a national assembly at Angora which was responsible for the abolition of the sultanate and the caliphate, and the establishment of the republic in 1923. See TURKEY.

Kemble

Charles. English actor. Son of Roger Kemble and brother of Sarah Siddons, he was born Nov. 25, 1775, and educated at Donal. His first stage appearance was at Sheffield in 1793. He subsequently appeared successfully in London, mainly in comedy. He was joint proprietor of Covent Garden Theatre and later an examiner of plays. He died Nov. 12, 1854.

Kemble left two daughters. The elder, **Frances Anne**, or **Fanny** (1809-93), was long a successful actress. Afterwards she made herself famous by her readings from Shakespeare. She wrote some plays and volumes of memoirs and died Jan. 15, 1893. The younger daughter, **Adelaide** (1811-79), became famous as an opera singer. She died Aug. 1, 1879.

Kemble

John Philip. English actor. Born at Prescott, Feb. 1, 1757, a brother of Charles Kemble and Mrs. Siddons. Educated for the priesthood, he preferred the stage instead and made his first appearance at Wolverhampton in 1776. In 1783 he came to London, where he achieved great popularity as a tragedian, especially in Shakespearean characters. He was manager of Drury Lane Theatre, 1788-96, and of Covent Garden, 1803-17. He died Feb. 26, 1823, at Lausanne.

Kempis

Thomas a. German writer. He was born about 1379 at Kempen near Dusseldorf. He was educated at Deventer and about 1400 entered an Augustinian monastery near Zwolle, becoming a monk, and living there until his death in 1471. He rose to be prior.

He made a complete copy of the Bible, and wrote histories, biographies, sermons, hymns, etc. He wrote also several books of devotion, one of which stands out as perhaps the greatest of its kind, *The Imitation of Christ*. It has been translated into many languages, and over 2000 editions have appeared. It was first printed at Augsburg in 1471 or 1472. In Brussels there is a copy written by Kempis himself, while in 1879 a facsimile edition was printed in London.

Kempston

Urban district of Bedfordshire. It is on the Ouse, 2 m. from Bedford. Roman and Saxon remains have been discovered here. Pop. (1931), 5390.

Kempton Park

District of Middlesex. It is near Sunbury, and is known for its racecourse. In the Middle Ages there was a palace here from which Henry VIII. used to hunt.

Kemp-Welch

Lucy Elizabeth. English artist. Born at Bournemouth in 1869, she studied at the

Herkomer School of Art, Bushey, Herts, and exhibited at the Royal Academy in 1894.

Her paintings of animals, especially of horses, show fine draughtsmanship, a strong sense of colour and good composition. Among her best works are "Colt Hunting in the New Forest" in the Tate Gallery, London; "Summer Drought"; "Horses Bathing in the Sea"; "Lord Dundonald's Dash on Lady-smith"; and "The Harvesters."

Kemsing

Village of Kent. It is 3 m. from Sevenoaks with a station on the S. Rly. It is notable as the birthplace of S. Edith. An image of the saint which stood in the churchyard was visited by thousands who believed it had miraculous power.

Ken

Thomas. English bishop. Born in July, 1637, at Berkhamstead, he was educated at Winchester and Oxford. He held livings in Essex, Hampshire and the Isle of Wight before 1679, when he went to the Netherlands as chaplain to the wife of William of Orange. In 1680 he returned to England and served as chaplain to Charles II., and held a clerical position in Winchester. In 1681 he was made Bishop of Bath and Wells, and he was one of the seven bishops who refused to read the Declaration of Indulgence and were therefore tried and acquitted. He refused to take the oath of allegiance to William and Mary in 1689, thus becoming a nonjuror and losing his bishopric. He died at Longleat, March 19, 1711. Ken is best known as the author of two popular hymns, "Awake my Soul" and "Glory to Thee."

Kenchester

Village of Herefordshire. It is 5 m. from Hereford and is chiefly remarkable as the site of the Roman town of Castra Magna. Much of it was excavated, 1912-13, and many interesting relics were found. Pop. 100.

Kendal

Market town of Westmorland, in full Kirkby-in-Kendal, on the River Kent, and the L.M.S. Rly., 21 m. from Lancaster. Here are ruins of a castle. Horse and cattle fairs are held and woollen goods are made, this industry having been introduced by the Flemings in the 14th century. Pop. (1931), 15,575.

Kendal Dame Margaret.

English actress. Born at Cleethorpes, March 15, 1819, she first appeared in London in 1865, under her maiden name of Margaret (Madge) Robertson. She won her greatest successes in emotional parts. In 1869 she married the actor W. H. Grinstead (1843-1917), who took the name of Kendal. With Sir John Hare he was manager of the St. James's Theatre, 1879-88. Mrs. Kendal retired in 1907 and in 1926 was made a dame (D.B.E.).

Kenilworth

Urban district of Warwickshire. It is 4 m. from Warwick, on the L.M.S. Rly. It is chiefly famous for its castle, now in ruins. This was added to throughout the centuries, notably by Simon de Montfort, Henry III. who took it in 1266, John of Gaunt, Henry VIII. and the Earl of Leicester, to whom it was given by Elizabeth. It was destroyed during the Commonwealth. The castle was one of the largest and most important in England. The town has a trade in agricultural produce. Pop. (1931), 7592.

One of Scott's finest novels, *Kenilworth*, describes the visit of Elizabeth to the Earl of Leicester in 1575, when she was entertained with great magnificence.

Kenley District of Surrey. It is 17 m. from London, on the S. Rly. The fine common is the property of the city corporation.

Kenmare Market town of Kerry, Irish Free State. It stands on the river of the same name and is reached by the G.S. Rly., and by canal. It is a popular tourist centre, the attractions including fishing and some wonderful scenery. Near are Dorreen, a seat of the Marquess of Lansdowne, and Dunkerron Castle. Pop.-880.

Kenmare River, really an estuary, 28 m. long and reaching 6 m. wide, separates the counties of Cork and Kerry.

The Irish title of the **Earl of Kenmare** has been borne since 1801 by the family of Browne. The earl's eldest son is called Viscount Castlerosse. The son of the 5th earl, Viscount Castlerosse, made a reputation as a journalist on *The Daily Express*.

Kennedy Scottish family, the head of which is the Marquess of Ailsa. The home of the Kennedys was in Ayrshire and in 1452 Gilbert Kennedy was made a Lord of Parliament. A later Lord Kennedy became Marquess of Ailsa (q.v.).

Kennedy Benjamin Hall, English headmaster. Born in Birmingham, Nov. 6, 1804, he was educated at Shrewsbury and St. John's College, Cambridge. He became a fellow of his college and a clergyman, and in 1830 a master at Harrow. In 1836 he was chosen headmaster of Shrewsbury, and during the next 31 years he made this school famous for its classical scholarship. In 1867 he became Regius Professor of Greek at Cambridge, and he died April 6, 1889. Kennedy is known for his *Latin Grammar*.

Kennedy's brother Charles Rann Kennedy (1808-67), was also a famous classical scholar at Cambridge, and a fine lawyer. A nephew, William Rann Kennedy, became a Lord Justice of Appeal.

Kennedy Margaret, English novelist. A daughter of C. M. Kennedy, a barrister, she went to Cheltenham College and then to Somerville College, Oxford. She studied history, and in 1922 published *A Century of Revolutions*. In 1924 she made a name with a novel, *The Constant Nymph*, which was equally successful on the stage and screen. Her later books include *Red Sky at Morning*, *Come with Me* and in 1931 *Return I Dare Not*. She is the wife of Mr. David Davies.

Kennedy Thomas, Scottish politician. Born in 1876, he became a Socialist and in time was appointed Secretary of the Social Democratic Federation. In 1921 he was elected M.P. for Kirkcaldy and he was re-elected in 1923, 1924 and 1929. In 1921 he was made one of the whips of the Labour Party in Parliament, and in 1924 was a Lord of the Treasury. In 1927 he became chief whip and in 1929 Parliamentary Secretary to the Treasury. In Aug., 1931, he resigned, and at the general election lost his seat.

Kennet River of Berkshire. It rises in the Downs in Wiltshire, and passing Nowbury enters the Thames at Reading. It is 44 m. long. The Kennet and Avon Canal, the property of the G.W. Rly., connects the river with the Avon at Bath.

Kennington District of London. To the S.E. of the city, it is in the borough of Lambeth. Kennington

Park, once known as Kennington Common, was extended in 1931. Here is Kennington Oval, the headquarters of the Surrey Cricket Club, which, like much of the property around, is on the estate of the Duchy of Cornwall.

Kennington Eric Henri, English artist. Born in London, March 12, 1888, he studied art there. His first important work, "The Costermongers," was exhibited in 1914. It is now in the Luxembourg, Paris. In 1918 he was appointed an official artist on the western front. His works include a painting on glass, "The Kensingtons in Action," war memorials in Battersea Park, London, and Soissons, and the bronze statue of Thomas Hardy unveiled at Dorchester in 1931.

Kenora City of Ontario. It stands on the Winnipeg River, near its source in the Lake of the Woods, and 132 m. from Winnipeg. It has a station on the C.P.R. and is a centre of the lumbering industry. Pop. 5400.

Kensal Green District of London, to the N.W. of the city. It is chiefly famous for its cemeteries, but is also a busy district along the Harrow Road.

Kensington Borough of the county of London. Known as the royal borough, it lies to the W. of the city. The chief buildings include the Victoria and Albert Museum, the Natural History Museum, the Imperial Institute, the Albert Hall and the fine church of St. Marg. Abbotts. High Street is a popular shopping centre. The borough also includes Holland Park, Campden Hill and Brompton with its oratory and parish church, near where are Prince's Club and Harrod's Stores and Earl's Court. The Bishop of Kensington is a suffragan of the Bishop of London. Pop. 180,681.

Kensington Gardens is a pleasure resort adjoining Hyde Park. It covers 275 acres and contains the Round Pond and a sunk garden. In it are the Albert Memorial and several statues, including one of Peter Pan.

Overlooking the gardens is Kensington Palace, the birthplace of Queen Victoria. Originally a residence of the Earl of Nottingham, called Nottingham House, it was bought by William III. in 1689 and largely rebuilt by Wren. Features are the gallery, the orangery and the grand staircase. It is now divided into residences for various members of the royal family and others connected with the court.

Kent One of the kingdoms of England in Anglo-Saxon times. It was founded by the Jutes, before 500 and had its own kings until about 700. Canterbury being the capital. Later it became part of Wessex. Its most notable king was Ethelbert.

Kent County of England. Its boundaries are the Thames and the sea with Surrey and Sussex on its inland borders. Its extent is 1555 sq. m. and, in the west, it forms part of the London area. Maidstone is the county town. Canterbury is the ecclesiastical capital of England and there is also a bishopric at Rochester. Kent is a fertile and in the main a level county. In the centre are the Weald and extensive areas where fruit and hops are grown, for which the county is famous. There are some hills in the west, Westerham Hill being about 800 ft. high. The chief rivers are the Medway, Darent and Stour. In the east near Dover a coalfield has been opened and model villages, such as Tilmanstone, erected.

Along the estuary of the Thames and on the Medway is a great industrial area, towns thereon being Dartford, Erith, Gravesend, Chatham, Rochester and Gillingham. Chatham is also a naval station. Round the coast are watering places, some being on the so-called islands of Sheppey and Thanet. Among these are Herne Bay, Tankerton, Whitstable, Margate, Broadstairs, Ramsgate, Dover, Folkestone, Deal and Romney. Dover and Folkestone are also seaports for Continental traffic. Inland towns include Tunbridge Wells, a watering place, Bromley, Sevenoaks, Ashford, Faversham and Sittingbourne, and there are many picturesque little towns such as Cranbrook and Penterden. In the south is Romney Marsh. Knole and Penshurst are famous English homes; Walmer, Dover and Leeds are castles of interest and the county is full of historic spots. It sends 11 members to Parliament.

Originally one of the Anglo-Saxon kingdoms, Kent passed under the rule of Wessex about A.D. 700.

Kent is a famous cricketing county, some of the earliest clubs having been founded here and more than once its eleven has won the county championship.

Persons born east of the Medway are Men of Kent; those born west are Kentish Men. Pop. (1931) 1,194,115.

A British cruiser called the *Kent* took part in the Battle of the Falkland Islands in 1914, after which she chased and destroyed the *Dresden*.

Kent Duke of. Extinct English title. There was an Earl of Kent in very early times and in the 13th century the title came to Edmund, a son of Edward I. Later it was held by the Holland family and then by the Greys. In 1706 Henry Grey, the 12th Earl, was made Marquess of Kent and in 1710 Duke of Kent. The titles all became extinct when he died in 1740.

In 1799 George III. made his fourth son, Edward Augustus, Duke of Kent. He was born Nov. 2, 1767, and served for a time in the army. He married, in 1818, Victoria (1786-1861) widow of the Prince of Leiningen and their only child was Queen Victoria. The Duke spent his last days in retirement at Sidmouth and there he died, Jan. 23, 1820, his daughter being only a few months old.

Kentigern Scottish saint. He was born in 513 and was educated at Carlisle by Saint Servanus. A period of hermitage preceded his elevation to the rank of Bishop of Glasgow. He remained there until his death in 603, except for a few years passed in Wales. Sometimes called Mungo, or the beloved, Kentigern is the Patron Saint of Glasgow.

Kentish Town District of London. To the north-west of the city in the borough of St. Pancras, it is a densely-populated district. The industries include the making of cigarettes, furniture, etc. Here is the North-Western Polytechnic.

Kent's Cavern Cave near Torquay. It is famous for its evidences of Palaeolithic man. The cave was examined first in 1824, but a more thorough exploration was made from 1868 to 1880. Beneath a bed of stalagmite were found various implements of flint, bone and horn, together with the bones of the mammoth and other animals.

Kentucky State of the United States. It is an east-central state,

covering 40,600 sq. m. A level and fertile region, except in the east where are the Alleghany Mountains, it produces great quantities of wheat, maize, tobacco, etc., and is famed for its horses. Frankfort is the capital, but Louisville is the largest city. Other populous centres are Covington and Lexington. The chief rivers are the Ohio, Mississippi, Big Sandy and Cumberland. In the state is the Mammoth Cave. Kentucky, which has been a state since 1792, sends two senators and 11 representatives to Congress. State government is carried on by a general assembly of two houses. Pop. (1930) 2,614,589.

Ken Wood Estate at Hampstead, now public property. Sometimes called Caen Wood, a house stood here in the 17th century or earlier. This became the property of the Duke of Argyll and later of the Earl of Bute. In 1755 the 1st Earl of Mansfield bought it and the house was largely rebuilt for him by Robert Adam. It remained a seat of the earls for about 150 years. In the 20th Century it was bought by the Earl of Iveagh, who, in 1927, left to the nation the house and some 70 acres of land. The wood proper, previously acquired, was opened in 1925 as a public pleasure ground.

Kenworthy Joseph Montagu. English politician. Born March 7, 1886, the eldest son of Baron Strabolgi, he entered the navy in 1902. Having served through the Great War, he retired in 1920 with the rank of lieutenant-commander. In 1919 he had been elected Liberal M.P. for Hull (Central) and in 1926 he joined the Labour Party, losing his seat in 1931. In the House of Commons he became a pertinacious questioner of ministers. At one time Kenworthy was heavy-weight boxing champion of the navy.

Kenya British colony and protectorate in East Africa. It covers 225,100 sq. m. and has a coastline of about 600 m. on the Indian Ocean. Elsewhere its borders touch Tanganyika, the Sudan, Abyssinia and Italian Somaliland. The surface is hilly and in parts mountainous, Mount Kenya being 17,000 ft. high. The rivers include the Tana, Juba and Umba, and there are several lakes. Nairobi is the capital, but Mombasa is the largest town. Mombasa and Kilindini are seaports; Kisumu is a port on Lake Victoria.

The bulk of the country, the colony, is divided into seven provinces, originally forming the East Africa Protectorate. A strip of land along the coast and some islands, leased from the Sultan of Zanzibar, form the protectorate. The people are chiefly Bantu, but British settlers have taken up land, and there are many Indians and Arabs. Much of the soil is fertile, coffee, cotton, rubber, maize and other tropical products being grown, and there are farms for sheep and ostriches. Much of the land is heavy forest. The government is under a governor, assisted by an executive and a legislative council. Both Indians and Arabs are represented in the latter. The country has a railway system and aerodromes for the air service. The unit of currency is the silver shilling. Pop. 3,049,000, of whom 16,800 are Europeans.

Kepler Johann. German astronomer. Born at Weil, Dec. 27, 1571, he was educated at the University of Tübingen. In 1594 he went to Graz as Professor of Mathematics and Astronomy, and in 1601 he succeeded Tycho Brahe in a similar position

at Prague. Later he lived at Linz and was astronomer to Wallenstein. He died Nov. 15, 1630.

Kepler did a great deal of valuable work, but his chief title to fame arises from his three laws of planetary motion, which were used to good purpose by Newton, and are the basis of modern astronomy.

Keppel Name of a family famous in the British Navy. A member of the family came to England with William III. and was made Earl of Albemarle. **Augustus Keppel**, a son of the 2nd earl, was born April 25, 1725, and entered the navy as a boy. He saw a good deal of service and rose to be an admiral and commander-in-chief of a fleet. He was an M.P. for some years and in 1782 was made First Lord of the Admiralty and a viscount. He died Oct. 2, 1786.

A later sailor of the same family was **Henry Keppel**, a son of the 4th earl. He was born June 14, 1809, entered the navy in 1822 and lived until Jan. 17, 1904. He held important commands and rose to be an admiral of the fleet. Sir Henry wrote *A Sailor's Life Under Four Sovereigns*.

Kerensky **Alexander Feodorovich**. Russian leader. He was born in 1881, became a lawyer in Moscow and a leading figure among the reformers and sat in the last Duma. In 1917, when the revolution broke out, he joined the government and, as Minister of War, directed the military operations that were the last efforts of Russia against Germany. Later in the year he became prime minister and then president of the new republic, and was for a time the ruler of the country. The Bolsheviks, however, soon proved too strong for him and he escaped from Russia. In 1919 he published an account of his activities called *The Prelude to Bolshevism*. In 1932 he wrote for the Press in London.

Kerguelen Land Island in the Indian Ocean, sometimes called Desolation Land. It covers 1400 sq. m. but is uninhabited. It was discovered by Yves Kerguelen Tremarec, a French sailor, in 1772 and is a French possession, having been annexed in 1893.

A plant called the **kerguelen cabbage** is eaten by sailors as a vegetable.

Kerman City of Persia. It is about 400 m. south-east of Teheran and is the centre where several roads meet. A trading centre, it is famous for its carpets. Kerman is the capital of a province which is noted for its goats and camels. Pop. 40,000.

Kermes Dyestuff resembling cochineal in colour. It is obtained from the dried female scale insects found on a species of oak (*Quercus coccifera*) growing in the Mediterranean region. In Europe Kermes has been superseded by cochineal and the more recent aniline dyes, but is used still in the East.

Kerosene Name given to mineral illuminating oils, especially those derived from petroleum by fractional distillation and commonly known as paraffin oil. Kerosene is a mixture of liquid hydrocarbons with a specific gravity from about 0.780 to 0.830, and for safety in use must have a flashpoint not below 150 C.

Kerry County of the Irish Free State, in the S.W. of the Province of Munster. It covers 1815 sq. m. Tralee is the county town; other places are Killarney and

Listowel. The coast is much indented by Kenmare River, Dingle Bay and other openings, and its interior is perhaps the most mountainous part of Ireland, containing McGillicuddy's Reeks and other ranges. The scenery, both coastal and inland, is very beautiful, as around Killarney, Glengariff and other beauty spots and on many rivers and lakes. Kerry includes Valencia and other islands. Agriculture is the chief industry, but there are also some peasant industries. There are many remains of the past in the county and many legends are associated with it. Pop. (1926) 143,171.

The title of **Earl of Kerry** is borne by the eldest son of the Marquess of Lansdowne, at one time a large landowner in the county. It dates from 1722. **Kerry cattle** are a small but fine and hardy breed found in this part of Ireland.

Kesteven One of the divisions of Lincolnshire. It is in the south-west of the county and covers about 750 sq. m. It has its own county council. **Stamford** being its county town.

Keston District of Kent. It is 4 m. from Bromley and has become a residential suburb of London. Here is a large common.

Kestrel Genus (*Falco*) of small birds of prey. The common kestrel (*F. tinnunculus*), also called the windhover, is found in Great Britain and other parts of Europe and Asia. The male has black-spotted, reddish plumage, with ashy-grey crown and tail. The bird resembles the falcon and averages about 13 in. in length and feeds on mice and insects and sometimes on young birds. The eggs are red and spotted.

Keswick Market town and urban district of Cumberland. It stands on the Greta, 13 m. from Cockermouth, and is reached by the L.M.S. Rly. Near is Greta Hall, once the residence of Southey. The town is a centre for visitors to the Lake District; it adjoins Derwentwater and Skiddaw is near. Every summer the **Keswick Convention**, an evangelical gathering, is held here. Lead pencils are made in the town. Pop. (1931) 4635.

Ketch Small coasting vessel, fore and aft rigged. It has, in addition to a mainmast, a mizzen mast placed in front of the rudder. A similar rig is adapted for some kinds of yachts.

Ketch Jack. Public executioner. He lived in the time of Charles II. and in 1662 was appointed public executioner. He executed Lord William Russell, the Duke of Monmouth and other convicted persons. He died in 1684.

Ketchup Sauce or relish. It is prepared chiefly from mushrooms, tomatoes or green walnuts, salted and spiced, steeped in vinegar, and boiled. It is also spelt catsup.

Ketley Village of Shropshire. It is 2 m. from Wellington and has a station on the G.W. Rly. The chief industry is coal mining. Pop. 2200.

Ketones Series of organic compounds. They result from the oxidation of secondary alcohols, and, unlike the nearly-related aldehydes, do not possess reducing properties. Acetone is, industrially, the most important, being used as a solvent in several manufacturing processes. Other ketones occur as constituents of various essential oils.

Kett Robert. English agitator. Born about 1500, he lived at Wymondham, where he became a tanner. He took the lead against the enclosure of common lands. In 1549, with his brother, William, he marched with the rebels to Norwich and in July encamped on Mousehold Heath, where, sitting under a tree, he held courts and heard complaints from the people around. They got possession of Norwich, but on Aug. 26 the rebel force was destroyed by troops under the Earl of Warwick. The Kett's were taken and hanged, Robert being put to death in Norwich, Dec. 7, 1549, after a trial in London.

Kettering Urban district and market town of Northamptonshire. It is 72 m. from London and 14 from Northampton, on the L.M.S. Rly. Wickstead Park is a public recreation ground. The chief industry is the manufacture of boots and shoes. Pop. (1931) 31,220.

Kettle Hole Natural cavity resembling a kettle's interior. They are due to scouring by detrital materials in eddying currents of water and are found in rocks. Examples occur in Switzerland, Norway and North America.

Kew Suburb of London. It is on the Surrey side of the Thames, 10 m. from London, and forms part of the borough of Richmond. A modern bridge connects it with Brentford. **Kew Green** is an open space and S. Anne's is the chief church. At Kew is the observatory maintained by the Meteorological Office.

Kew is chiefly known for its palace and gardens. The palace was bought by George III. in 1781 and was, for some time, a royal residence. In 1899 it was opened to the public.

Kew Gardens, originally the gardens of the palace and known as the Royal Botanic Gardens, are the chief botanical gardens in England. They cover 288 acres. During and since the 18th century many foreign plants were introduced, and the collection has become quite remarkable. In 1841 the gardens were opened to the public. In the grounds are four museums, the Chinese Pagoda, the Herbarium, Palm House and laboratories. The gardens come under the control of the Ministry of Agriculture as the centre for research into plant life and its possibilities.

Key In architecture a term applied to the central stone (keystone) at the apex of an arch, locking together the component parts.

A key is also an instrument for manipulating the bolt of a lock, and a tool for turning a nut.

In music a key is a system of sounds related to one certain sound or key note, and also the lever which raises the hammer in a pianoforte or covers the sound-holes in a flute, etc.

Keyes Sir Roger John Brownlow. English sailor. Born in 1872, he entered the navy in 1885. He served for a time as a naval attaché and had commanded submarines when the Great War began. He served both in the North Sea and in the operations against the Dardanelles and in 1917 was made Commander of the Dover Patrol. He was responsible for the raids, in April, 1918, on Zeebrugge and Ostend, being rewarded with a knighthood. At the peace he was given £10,000 and made a baronet. In 1919 Keyes was chosen Commander of the Battle Cruiser Squadron of the Atlantic Fleet; in 1921 he became deputy-chief of the naval staff; in 1925 commander-in-chief in the Mediterranean,

and in 1929 commander-in-chief at Portsmouth. In 1930 he was made an admiral of the fleet.

Keyham District of Plymouth. It stands on the Hamoaze, on the G.W. Rly. and consists chiefly of buildings associated with the naval dockyard, such as repairing yards and engineering works. Here is the college at which students are trained to become engineer officers in the navy, accommodating about 350 pupils.

Keyne Welsh saint. She lived as a hermit near Bristol where legend identifies certain local fossils with snakes petrified by her prayers. Another tradition claims her for Cornwall where a well, bearing her name, exists. She lived about 485.

Keynes John Maynard. English economist. Born at Cambridge, June 5, 1883, he was the son of J. N. Keynes, who was Registrar to the University, 1910-25. After a brilliant career at Eton and King's College, Cambridge, where he was president of the Union, Keynes entered the civil service in 1906 and served in the India Office and the Treasury. In 1919 he represented the Treasury at the Peace Conference in Paris, but soon after he left the service and wrote a criticism of the conference in *The Economic Consequences of the Peace*. He then became bursar of King's College, Cambridge, and chairman of the National Mutual Life Assurance Co. Since 1912 he has edited *The Economic Journal*. In 1926 he published *The End of Laissez Faire* and in 1930 declared in favour of a tariff on imported goods. Another of his books is *A Treatise on Money*, and in 1931 he published *Essays in Persuasion*. Keynes married the Russian dancer, Lydia Lopokova.

Keys House of. One of the two branches of the legislature of the Isle of Man. It consists of 24 members, who are elected by men and women electors, for seven years. With the council or upper house, it forms the parliament of the island called the Court of Tynwald.

Keyserling Hermann. German writer and philosopher. Born in Estonia, July 21, 1880. He went to several universities, including Heidelberg, and spent several years in the study of science and philosophy. In 1908 he inherited his father's Russian estates and the title of count, but lost the former during the revolution of 1917. He settled at Darmstadt where, in 1920, he founded the School of Wisdom. After having spent much time in travel, he expressed his philosophy of life in the book which made him famous, and which has been translated into English, *The Travel Diary of a Philosopher*, 1925.

Khaki Indian word meaning dust-coloured and denoting various fabrics used for clothing for soldiers. It was first worn by soldiers in India in 1848 and during the Mutiny came further into use. Owing to its useful colour, it was introduced into the British Army during the war with the Boers, 1899-1902. Khaki then became the official field service uniform for almost all the troops and has been adopted by other armies.

Khalifa Title borne by the arch-leader Abdullah el Taashi. He first appeared as one of the advisers of the Mahdi and a leader of those who objected to Egyptian authority in the Sudan. In 1885 he succeeded to the Mahdi's position and ruling the tribes there, he maintained himself at Khartoum and

then at Omdurman until 1898. In September of that year his forces were utterly defeated by the British and Egyptians under Kitchener. He escaped, but on Nov. 24, 1899, was again defeated and killed.

Khan Title used in Asia. It means lord or master and was first used by the Mongol, Jenghiz Khan.

Kharkov Capital of the Ukraine. It is 250 m. from Kiev and is one of the most important trading and manufacturing centres in Russia. Well served by railways, it has a trade in wheat and wool and many manufactures. Its fairs are notable, and it has a broadcasting station (937.5 M., 20 kW.). Pop. 417,200.

Khartum City and capital of the Anglo-Egyptian Sudan. It stands at the junction of the Blue and the White Nile, 1356 m. from Cairo. It is connected by railway with Shellal, on the Nile, with Port Sudan, on the Red Sea and with El Obeid. The city proper lies between the White Nile and the Blue Nile, with a suburb across the latter. Away to the east is Omdurman. Khartum was founded in 1822 and destroyed by the Arabs in 1885. Taken by the British in 1898, it was laid out and rebuilt on modern lines. The buildings include the Anglican Cathedral and the Gordon Memorial College. Pop. 50,463.

Khedive Title borne before 1914 by the ruler of Egypt. A Persian name meaning prince, it was given in 1867 by the Sultan of Turkey to his vassal, Ismail Pasha. In 1914 Turkish rule in Egypt ended and the Khedive was deposed; the ruler's title was then changed to Sultan, and in 1922 the sultan was proclaimed king.

Kherson Town of Ukraine, 90 m. from Odessa, it stands on the Dnieper, being a river port. There are some manufactures and a trade in timber, hides, etc. Pop. 58,800. Another Kherson is 2 m. from Sevastopol in the Crimea.

Khiva City of the Soviet Republic of Uzbekistan. It is 470 m. from Tashkent and is an important trading centre. At one time it was the capital of a khanate, which lay to the north of the Sea of Aral and covered some 24,000 sq. m. It became Russian in 1873. After the Great War it passed under the rule of Bolsheviks and was for a time the capital of a small Soviet republic. Pop. 10,000.

Khyber Pass Rocky defile leading from Afghanistan into India. It is 33 m. long and is now the main road from Kabul into the North-West Frontier Province. The railway has recently been continued from Jamrud, 11 m. west of Peshawar, to Landi Kotal overlooking the Afghanistan plains. There was fighting in the pass between the British and the Afghans in 1839-42 and again in 1879-80.

Kiao Chau District in the Province of Shantung, China. In 1898 Germany secured from China the lease of some 200 sq. m. here, on account of the murder of two German missionaries. On this was built the port of Tsingtau which was strongly fortified. On Nov. 7, 1914, after a siege, it was taken by the Japanese and British. The district was ruled by Japan until 1922, when it was returned to China.

Kicking Horse Pass Crossing in the Rocky Mts. in Canada. Situated on the eastern boundary of British Columbia, 5296 ft. above

sea level, west of Banff, Alberta, it is traversed by the main line of the Canadian Pacific Railway. The Kicking Horse or Wapta River flows through it.

Kidbrooke District of London. It is in the borough of Greenwich, on the S. Rly., 7 m. from the city. Here is a station of the Royal Air Force.

Kidd Benjamin. British sociologist. Born Sept. 9, 1858, after being a clerk in the Civil Service he travelled in America and Canada in 1898, studying economics, and in 1902 did the same in South Africa. In 1904 he published *Social Evolution*, which was translated into many languages, including Chinese. He has also written *The Control of the Tropics* (1898) and *Principles of Western Civilisation* (1902). He died at Croydon, Oct. 2, 1916.

Kidd William. Scottish pirate. He was probably born at Greenock about 1660 and became a sailor, seeing a good deal of service on board a privateer in American waters. In 1696 he himself obtained command of a privateer intended to prey upon French commerce, but soon he turned pirate and, in the *Adventure*, did a great deal of damage to English and other shipping. In 1699 he was captured at Boston and sent to England where he was tried and sentenced as a pirate. He was hanged May 23, 1701.

Kidderminster Borough and market town of Worcestershire. It stands on the Stour, near where it falls into the Severn, 15 m. from Worcester and 135 from London, and is reached by the G.W. Rly. The chief industry is the manufacture of carpets. The town has memorials to Richard Baxter and Rowland Hill. Pop. (1931) 28,914.

Kidnapping Forcibly carrying away a human being, especially a child. Originally applied to stealing persons for the plantations in North America, it is now used for stealing a child. It is an offence in Great Britain, under a law of 1861, punishable by penal servitude. Legally it is known as abduction.

Kidney Organ of the body. Comprising a pair of glands in the abdomen, close to the diaphragm and the spine, it eliminates the blood's waste nitrogenous matter in the form of urea and other saline substances dissolved in water. It is bean-shaped and purplish-brown in colour. The two kidneys have abundant nerves, blood vessels and lymphatics, besides filtering and secreting tubes; there normally pass through the duct into the adult bladder 50 oz. or 2½ pints of urine in 24 hours.

The kidneys are subject to a number of diseases, among them Bright's disease and renal calculus.

The kidneys of the lamb, sheep and other animals are articles of human diet.

Kidron Watercourse and torrent bed in Palestine. Rising between Jerusalem and Olivet, it was the "Brook Cedron" of John xviii. It traverses a wild, magnificent gorge, Wady en-Nar, or the "Valley of Fire" and ends in the Dead Sea. During most of the year it is dry.

Kidsgrove Urban district and market town of Staffordshire. It is 6 m. from Stoke-on-Trent and 153 from London, on the L.M.S. Rly. It is also served by the Trent and Mersey Canal. Coal mining is the chief industry. Pop. (1931) 9937.

Kidwelly Borough and market town of Carmarthenshire. It stands on the little River Gwendraeth, near where it falls into Carmarthen Bay, and is 9 m. from Llanelly and 217 from London. The chief industry is the making of tinplate and around are coal mines. Pop. (1931) 3161.

Kiel Town and seaport of Germany, on Kiel Bay, an opening of the Baltic, and 70 m. from Hamburg. It owes its importance to its position at one end of the ship canal, and was, before the Great War, one of the chief stations of the German Fleet. The palace dates from the 16th century and the university from the 17th, but modern buildings have been erected for the latter.

The harbour was much improved after Kiel became Prussian in 1866. It was strongly fortified, but by the Peace Treaty of 1919 the defences were destroyed and the naval establishments turned to commercial uses. It has large shipbuilding yards and huge docks, as well as flour mills and printing works. Fishing is another industry and it is a pleasure resort, its annual regatta being a noted event. There is a large trade in agricultural produce. Kiel was part of Holstein until 1866 and the residence of the dukes of Holstein for many years. It has a broadcasting station (232.2 M., 0.25 kW.). Pop. 213,880.

Kiel Canal Ship canal. Cut through the peninsula of Jutland, it connects the North Sea and the Baltic. Begun in 1887 and finished in 1895 it was deepened between 1909 and 1914 to take the largest vessels. Its length is 61 m. and its depth 45 ft. Kiel is at one end of the canal and Brunsbüttel, on the Elbe, at the other, and there are huge docks at Brunsbüttel and Holtenau. By the treaty of 1919 the canal is open on equal terms to the ships of all nations that are at peace with Germany.

Kieselguhr Material used in making dynamite and some kinds of soap, as a polishing powder, and as packing for articles requiring to be fireproof. Consisting of the remains of diatoms, it is almost wholly silica and is found deposited in certain freshwater lakes in Scotland, Sweden, Germany, and North America, as a greyish or brownish material, sometimes called diatomite.

Kiev Town of Ukraine. It stands on the Dnieper, where it is joined by the Desna, 280 m. from Odessa. There are some manufactures and a large trade in cattle, timber and agricultural produce. An old city, Kiev was at one time the chief town of the principality of Kiev. It was taken by Russia in 1786. During the Great War it was seized by the Germans and later by the Poles. It has a broadcasting station (1034 M., 36 kW.). Pop. 514,000.

Kikuyu Village and district of Kenya, East Africa. The village is 15 m. from Nairobi and is notable because of a conference of missionaries held here in June, 1913. Various Protestant denominations were represented and joined in a communion service celebrated by two Anglican bishops. The Bishop of Zanzibar protested and the Archbishop of Canterbury consulted his colleagues on the matter. After a conference he decided, in 1915, that the two bishops had acted irregularly in giving communion to those who were outside the Anglican Church. He laid it down, however, that this could be done if the bishop of the diocese consented.

Kilbirnie Town of Ayrshire. It is on the River Garnock, 20 m. from Glasgow, and is reached by the L.M.S. Rly. The chief industry is engineering. There are ruins of a castle, at one time a seat of the Earl of Crawford. Near is Kilbirnie Loch. Pop. 8032.

Kilbride Town of Ayrshire. It stands near the coast, with a station on the L.M.S. Rly., 4 m. from Ardrossan. On the coast is a little watering place called Seasmill. Pop. 2400.

Kilbride, which means the Church of S. Bride, is properly West Kilbride. East Kilbride is a town of Lanarkshire. There is also a Kilbride in Skye.

Kilburn District of London. To the north-west of the city, it is partly in Hampstead and partly in Willesden. In the 18th century a spa called Kilburn Wells existed here. The district includes Kilburn Park.

Kildare County of the Irish Free State. It is in Leinster, wholly inland, and covers 654 sq. m. The rivers are the Liffey, Boyne and Barrow, and it is served by the Gt. S. Rlys. and the main Irish canals. Kildare is the county town, others being Maynooth, Naas, Athy and Newbridge. The county contains the Curragh and much of the Bog of Allen. It has some ruins, notably those of Monastererevan. Pop. (1926) 58,028.

Kildare St. is a thoroughfare in Dublin. In it is the Kildare St. Club, the most famous of Irish clubs, founded in 1788.

Kildare Market town of Kildare; also the county town. It is 30 m. from Dublin, on the Gt. S. Rlys. Pop. 2116.

Kildare Earl of. See FITZGERALD.

Kilimanjaro Mountain of Tanganyika Territory, East Africa. It is an extinct volcano with two peaks. Kibo, the higher, being 19,325 ft. Mawenzi, the lower one, lying about 7 m. to the west. The lower part is a dense forest, the higher portion is covered with snow and glaciers. The top of the mountain was first reached in 1899; in 1927 the ascent was first made by a woman.

Kilkee Watering place of Co. Clare, Ireland. It is 8 m. from Kilrush, on the Gt. S. Rlys. The place is visited for the bathing and the scenery. Near are the ruins of Dunlicky Castle. Pop. 1700.

Kilkenny County of the Irish Free State. Wholly inland, it is in Leinster and covers 796 sq. m. Kilkenny is the county town; other places are Castlecomor, Callan and Thomastown. The rivers are the Barrow, Suir and Nore. The county is level except for a few hills in the north, and the soil mainly fertile. Agriculture is the chief industry, a little coal and marble being mined. Pop. (1926) 71,000.

Kilkenny City and market town of Kilkenny, also the county town, and the seat of the Bishop of Ossory. It stands on the Nore, 81 m. from Dublin, by the Gt. S. Rlys. The town is divided by a small stream called the Bregeen into two parts, one Irish and one English. Overlooking the city is the castle, the residence of the Marquess of Ormonde. In the neighbourhood are some monastic ruins and the restored Black Abbey. The industries include marble works and flour mills, and there is an agricultural trade. Pop. 10,050.

Killaloe City of Co. Clare, Irish Free State. It stands on the Shannon 17 m. from Limerick. Across the Shannon is *Balina*, a bridge linking the two places. The town is visited for the fishing. Pop. 900.

Killarney Market town and urban district of Co. Kerry, Irish Free State. It is 46 m. from Cork, on the Gt. S. Rlys. Killarney House, the seat of the Earl of Kenmare, has beautiful gardens. Pop. 5300.

Near the town are the *Lakes of Killarney*, one of Ireland's beauty spots. They are three in number—the upper, middle and lower. The largest is 4 m. long. The middle one is sometimes called *Muckross*. Between the upper and middle lakes is the meeting of the waters, really a rapid. The river *Fleek* flows into the lakes and the *River Laune* flows out of them. There are several islands including *Ross* and *Innisfallen*, the latter once a famous seat of learning. Objects of interest are the ruins of *Ross Castle* and *Muckross Abbey*. Near are the *Gap of Dunloe* and many beauty spots.

Another Killarney is a town of Queensland. It is near the border of New South Wales. Pop. 1500.

Killiecrankie Pass in Perthshire. It is nearly 2 m. in length. The River *Garry* and a road go through the pass where, on July 17, 1689, Viscount Dundee and his Highlanders defeated an English force, 4000 strong. Dundee, however, was killed in the fight.

Killigrew Thomas. English dramatist. Born in London, Feb. 7, 1612, he was a son of Sir Robert Killigrew. He grew up at the court of James I. and Charles I. and became known later by his play *The Parson's Wedding*. In 1673 he was made Master of the Revels to Charles II. He built a theatre in Drury Lane, London. Killigrew died March 19, 1683, and was buried in Westminster Abbey. Altogether he published nine plays and in them women were first allowed to appear on the London stage.

Killingworth District of Northumberland. It is 6 m. from Newcastle, on the L.N.E. Rly. and is a coal mining centre. Pop. 10,600.

Killyleagh Seaport of Co. Down, Northern Ireland. It is 4 m. from Crossgar, on Strangford Lough. Linen is made here. Pop. 1600.

Kilmacolm Watering place of Renfrewshire. It is on the Firth of Clyde, 8 m. from Greenock, by the L.M.S. Rly. Here is a hydropathic establishment. Pop. 5300.

Kilmainham District of Dublin. To the west of the city, it has two famous buildings. One is the prison, built about 1850 and used for political prisoners. In 1882, C. S. Parnell, when in prison here, made the so-called *Kilmainham Treaty* with the British Government, represented by Captain O'Shea. He agreed, in return for his release, to assist the authorities to pacify Ireland. He and his colleagues were released, but the treaty had no other issue because of the resignation of the Irish Secretary, W. E. Forster, and the murder of his successor, Lord F. Cavendish. The other building is the hospital. This was built from designs by Sir C. Wren in 1675-79 and was long used as a home for old soldiers.

Kilmarnock Burgh and market town of Ayrshire. It stands on a tributary of the Irvine, called *Kilmarnock Water*, 22 m. from Glasgow, by the L.M.S. Rly. Its industries are engineering works and the making of boots, curtains, etc., and there is an agricultural trade. There is a Burns Museum in Kay Park and a Burns Memorial. The burgh includes Ilkcarton. At one time Kilmarnock was noted for the woollen bonnets made here and named after the town. Pop. 35,000.

The title of *Earl of Kilmarnock* was borne by the family of Boyd from 1661 to 1746. The Boyds owned land in Ayrshire and had a castle at Kilmarnock. William, the 4th earl, was taken prisoner at Culloden, and was executed, Aug. 18, 1746. The title then became extinct. The title of Viscount Kilmarnock is now borne by the eldest son of the Earl of Erroll (q.v.).

Kilmore Name of several places in Ireland. The most important is 2 m. from Cavan, which has both a Protestant and Roman Catholic bishop. Another Kilmore is in Mayo.

The title of *Earl of Kilmore* has been borne since 1822 by the family of Needham, who had lands in Co. Down. In 1625 Sir Robert Needham was made a viscount and in 1822 the 12th viscount was made an earl. The family seat is Mourne Park, Newry, and the earl's eldest son is called Viscount Newry.

Kiln Structure designed for burning, baking or drying materials. In the lime-kiln type, the material comes into contact with the fuel, broken limestone and fuel being fed at the top of the kiln and a red heat maintained for some hours, or continuously in some cases. In another type, the furnace is either beneath or surrounds an oven in which the material is baked or fired. Of this type are brick kilns, pottery and hop-kilns. The hop kiln or oast house is provided with a funnel-shaped top which can be turned according to the direction of the wind.

Kilo Greek word for 1000. It is much used in the metric system as in kilogramme, 1000 grammes, kilolitre, 1000 litres and kilowatt, 1000 watts.

Kilometre Measure of length of the metric system. It is equal to 1000 metres or 10 hectometres, and its abbreviation is kilo. or km. Its equivalent in British measure is 0.62137 of a mile, nearly 1094 yards. Countries which have adopted the metric system (i.e., France, Belgium) show road distances in kilometres. The square kilometre is equivalent to 247 acres or 0.3861 of a square mile.

Kilpatrick Old. Town of Dumbartonshire. It is on the Clyde, 10 m. from Glasgow, on the G.M.S. Rly. Legend says S. Patrick was born here. New, or East Kilpatrick, 6 m. from Glasgow is a suburb of that city. Its other name is Bearsden. The Kilpatrick Hills are in the counties of Dumbarton and Stirling.

Kilrush Urban district, market town and seaport of Co. Clare, Irish Free State. It is 27 m. from Ennis. There is a harbour and some shipping and fishing. Pop. 3700.

Kilsyth Burgh of Stirlingshire. It is 13 m. from Glasgow, on the L.N.E. Rly. The chief industry is coal mining. A range of hills near is called the Kilsyth Hills. Pop. (1931) 7551.

Near Kilsyth a battle was fought between the Royalists under Montrose and the Covenanters, Aug. 15, 1645. The Royalists were victorious.

Kilt Garment worn sometimes by men in the Highlands of Scotland. Part of the traditional dress of the Highlander, it is really a skirt reaching to the knee, made of tartan, each clan having its own coloured pattern. It is worn by the Highland regiments of the British Army. The kilt is also part of the national dress of Ireland and attempts have been made to revive its use there.

Kilwinning Burgh of Ayrshire. It stands on the Garnock, 24 m. from Glasgow, on the L.M.S. Rly. The industries include engineering works and woollen mills. Kilwinning is famous for its archers and as an early home of freemasonry. Its annual archery festival is described in *Old Mortality*. Pop. (1931) 5324.

Kimberley Name of two English villages. One is in Nottinghamshire, 7 m. from Nottingham, on the L.N.E. Rly. The chief industries are coal mining and brewing. Pop. 5200.

The other Kimberley is in Norfolk, 4 m. from Wymondham. Near is Kimberley Park, the seat of the Earl of Kimberley.

Kimberley City of the Cape Province, South Africa. It is in the west of the province, 540 m. by railway from Capetown, and is the most important place in a wide district. The museum contains a fine collection of Bushman art and there is an art gallery. It includes Beaconsfield and Kenilworth. Kimberley owes its existence to the diamond mines, the working of which is the city's main industry. The first was opened in 1870. Pop. 40,000.

In Oct., 1899, the Boers began to besiege Kimberley, which was held by a small British force until relieved on Feb. 15, 1900. The bulk of the defenders belonged to the Loyal N. Lancashire Regiment and the Kimberley Light Horse. Memorial Hill is a reminder of the siege.

Kimberley Earl of. English title borne by the family of Wodehouse. John Wodehouse, a member of an old and influential Norfolk family, was born Jan. 7, 1826, and educated at Eton and Christ Church, Oxford. In 1846 he succeeded his grandfather as Baron Wodehouse.

In politics a Liberal, he was Under-Secretary for Foreign Affairs, 1852-56 and 1859-61. In 1864-66 he was Lord-Lieutenant of Ireland. From 1868-70, having been made an earl in 1866, he was Lord Privy Seal, and in 1870-74 was Secretary for the Colonies. In 1880-82 he was again Secretary for the Colonies and in 1882-85 and 1886 Secretary for India. From 1892-94 he was again Secretary for India and from 1894-95 Foreign Secretary. He was leader of the Liberal Party in the House of Lords from 1896 until his death, April 8, 1902. His son, John, became the 2nd earl.

Kimbolton Market town of Huntingdonshire. It is 10 m. from Huntingdon, on the L.M.S. Rly. It is named after the little River Kym, which flows by it. Pop. 900.

Kimmeridgian Term used in geology. Applied to the dark bluish clay found in Dorset, Yorkshire and other English counties, it is a subdivision of the Jurassic system and belongs to the Upper

Oolite series. The name is that of a village in Dorset near which the clay is found. Many fossils have been found in it.

Kimono Japanese garment with sleeves out in one piece with the gown. It is long and loose and is confined by a sash.

Kin Relationship by blood. The term next of kin is much used in English law. In case of death the next of kin has certain duties. The property of a person who dies intestate is divided among his kinsfolk, according to certain rules. See *INTESTATE*.

Kincardineshire County of Scotland. It is in the east of the country with a coastline on the North Sea, stretching from Aberdeen to Montrose. Its area is 382 sq. m. In the north are deer forests and grouse moors; in the south is the district called Strathmore and in the west and in the centre are the Grampians. Stonehaven is the county town; other places are Inverberrie, Banchory and Laurencekirk. Agriculture is the chief industry, but the only fertile soil is in the valleys. There is some fishing. The county is sometimes called the Mearns. Pop. (1931) 39,864.

Kindergarten German word meaning children's garden. It is used for the system of educating young children, introduced by G. W. Froebel (q.v.). The system provides time for play and allows the child to exercise its creative faculties in a number of ways. In England the first kindergarten was opened in London about 1850, and soon they were found all over the land, often as departments of schools for girls.

For Kindergarten Teachers courses are provided at the Froebel Educational Institute Training College, Grove House, Roehampton Lane, S.W.15; Maria Grey Training College, Salisbury Road, N.W.6; The Training College, Bedford; and at certain of the two-year Training Colleges special courses in junior work are provided.

Kinderscout Hill in Derbyshire. Near Edale, it is the highest point of the Peak District, being 2088 ft. It is a grouse moor.

Kindersley Sir Robert Molesworth. Born Nov. 21, 1872, the son of a soldier, he was educated at Repton. He entered a banking firm and became Chairman of Lazard Bros. & Co., and a Director of the Bank of England. During the war period he was Chairman of the National War Savings Committee, and after its conclusion was constantly called to advise the British Government. He represented Great Britain when the Dawes Plan was arranged in 1924, and on other important occasions.

Kinematics Section of mechanics dealing with pure motion, that is, motion without reference to mass or force. It is concerned with direction, acceleration, velocity and composition of motion, and brings into the range of consideration the ideas of time and space in relation to motion. In many ways the distinction between kinematics and dynamics becomes somewhat arbitrary and artificial. Applied kinematics is a theory of mechanics dealing with the conversion of reciprocal into circular motion in an engine.

Kinetics Branch of the science of dynamics that treats of the

action of forces upon the motion of bodies and of the nature of motion itself. Newton's laws of motion, and the fundamental laws by which gravitation and planetary movements are explained, and the theory of vibrations are included under kinematics. The application of kinematics to matter in a gaseous state is termed the *Kinetic Theory of Gases*.

Kineton Village of Warwickshire. It is 9 m. from Stratford-on-Avon, on the Gt. Western Rly. At one time Kineton was a market town. Pop. 1000.

King Name used for a ruler. It was given to the rulers who governed the little states that grew up in England in Anglo-Saxon times and was used as a translation of the Latin word *rex*. There were kings in Greece and Rome and later many of the European countries called their rulers by an equivalent of this word, such as *roi* and *konig*.

The early kings were elected, often perhaps from a narrow circle, but later the office became hereditary. Hereditary kingship became the rule in England, Scotland, France, Spain, Portugal, Hungary and Bohemia. Poland retained an elective king. In 1700 the ruler of Brandenburg was made King of Prussia and later the rulers of other German states, Saxony and Bavaria among them, were given the title of king. A king was given to the Netherlands in 1815 and later in the 19th century kings arose in Greece, Rumania, Bulgaria, and other parts of the Balkan area, and in Italy. The German kings disappeared after the Great War and in 1931 the King of Spain was deposed. France ceased to be a kingdom in 1852, when Napoleon III. declared himself emperor.

Some kings are kings of the people, e.g., the King of the Hellenes and Louis Philippe when King of the French. Others, such as England, are kings of the land. To-day, king is used very generally as a term for a ruler. The old tribal rulers in Ireland are referred to as kings, and the word is also used for chiefs in Africa and Asia.

King Edward, English bishop. He was born Dec. 29, 1829, a son of the Archbishop of Rochester. Educated at Oxford, he was ordained in 1854 and served as a curate. From 1858 to 1873 he was at the Theological College at Cuddesdon, first as chaplain and then as principal. In 1873 he was chosen Professor of Pastoral Theology at Oxford and Canon of Christ Church and from 1885 until his death, March 8, 1910, he was Bishop of Lincoln.

King was a prominent High Churchman who exercised a great influence over the students under his care and was remarkable for his personal piety. He is chiefly known for the case in which he was prosecuted before the Archbishop of Canterbury for permitting illegal ceremonial in church. The result was the so-called Lincoln Judgment that laid down the law of the Church of England about these matters.

King William Lyon Mackenzie, Canadian politician. Born Dec. 17, 1874, at Berlin, Ontario, he was educated for the law. In 1900 he entered the Ministry of Labour at Ottawa, and for eight years was a civil servant. In 1908 King was elected an M.P. and in 1909-11 he was Minister of Labour under Sir Wilfrid Laurier. In 1919, on Laurier's death, he was chosen leader of the Liberal Party and in 1921 he became Prime Minister and Secretary for External Affairs. He left office early in 1926, but soon returned and was again Premier and Secretary for External Affairs, 1926-30.

In 1930 his party was defeated and he resigned. Since 1926 he had sat in the House of Commons as one of the members for Saskatchewan. King attended the Imperial Conference in 1923. His writings are chiefly on industrial subjects, on which he is an authority.

King Bird Name of various American flycatchers. The males, during the breeding season, resist pugnaciously the approach of large birds, even eagles. The commonest are the ash-grey *Tyrannus carolinensis*, a summer migrant to Canada, and the grey, West Indian petchery (*T. griseus dominicensis*), which is larger, darker and fiercer still.

King Charles Spaniel Breed of toy dog which became fashionable in Charles I's reign. Derived from the cocker spaniel, there are two favourite strains, the glossy black-and-tan and the chestnut-red ruby. The dog has a short muzzle, wide eyes, upturned nose, domed head, long, silky coat and drooping ears. The tricolour Prince Charles is black, white and tan.

King Edward VII. Land District in the Antarctic Ocean. It lies to the south east of Ross Sea, nearly 2000 m. due south of New Zealand. It was touched at by Sir John Ross in 1842, but was not named until 1902, when R. F. Scott visited it.

Kingfisher Large family of birds allied to the hornbills. With large heads, long, straight bills and small feet, they are often brilliantly coloured. The common kingfisher, *Alcedo ispida*, is Britain's handsomest bird. The female lays two clutches of round, white eggs on unclean nests of disgorged fishbones burrowed in river banks. It lives mainly on fish, but some species live on insects and reptiles. The much larger North American belted kingfisher rarely straggles to Britain. See LAUGHING JACKASS.

King George V. Land District in the Antarctic regions. Its coastline was explored in 1911-14. It lies between Adelle Land and Oates Land and is nearly 2000 m. due south of New Zealand. It belongs to Great Britain.

Kinghorn Burgh of Fifeshire. It stands on the Firth of Forth. A monument marks the spot where, in 1286, King Alexander III. was killed by falling from his horse. Pop. (1931) 2001.

Kinglake Alexander William. English historian and traveller. Born at Taunton, Aug. 6, 1809, he was educated at Eton and Cambridge, and was called to the Bar in 1837. He travelled throughout the East, and recorded his impressions in *Eastern History* (1844). He went to the Crimea in 1854, and at Lord Raglan's suggestion wrote an elaborate *History of the Crimean War*, upon which eight volumes he worked until 1887. He was M.P. for Bridgewater, 1857-68, and died Jan. 2, 1891.

King of Arms Name of a high official in heraldry. It dates from about 1400, and there are now in the British Islands four kings of arms, one for each of the great orders of knighthood. Garter, principal king of arms, is the herald of the Order of the Garter. Bath King of Arms is the herald of the Order of the Bath. The others are the Lord Lyon King of Arms in Scotland, and Ulster King of Arms in Ireland,

who act for the Order of the Thistle and the Order of S. Patrick.

King Oscar Land District of British North America. It is the south-western part of Ellesmere Island and a British possession, although named after a Swedish king.

King Oscar II. Land is in the Antarctic. It lies between Weddell Sea and Bellingshausen Sea, with Graham Land to the south. It was visited and named by the Swedish explorer, Nordenskiöld, in 1902.

King Post Vertical beam at the apex of a pair of rafters, connected at its lower end to the tie beam. Struts project diagonally to the centres of the principal rafters when necessary. This is the normal construction in roofs and bridge girders for spans up to 30 ft.; in wider spans two queen-posts usually replace the king post.

Kings Books of the Old Testament. They give a history of the Jewish kings from the time of Solomon to the end of the monarchy. The author is unknown; tradition mentions Jeremiah.

The first two chapters of 1 Kings describe the death of David, thus continuing the second book of Samuel and the reign of Solomon. From 1 Kings xii. to 2 Kings xvi. the division of the country into Israel and Judah down to the time of the captivity is outlined; the final chapters of 2 Kings describe the Jewish kingdom to the fall of Jerusalem.

King's Bench Division

In England one of the three divisions of the High Court of Justice. It was at first the court held by the king, who, with the judges, sat on benches. It was held at first wherever he happened to be, but after a time was fixed at Westminster. Judges from this court went round the country to try offenders in the king's name, as they do to-day. In 1873 the court was reorganised and it now consists of 17 or 18 judges, with the Lord Chief Justice at its head. All criminal cases of importance come before these judges, as do civil cases except those concerned with chancery, probate, divorce and admiralty matters.

Kingsbridge Urban district, market town and seaport of Devonshire. It stands on Salcombe Bay, 15 m. from Dartmouth and 222 m. from London by the G.W. Rly. There is a little shipping; brewing is an industry and a fair is held here. Pop. (1931) 2678.

Kingsbridge is the name of a bridge over the Liffey in Dublin and of the terminus of the Great Southern Rlys nearby.

Kingsbury Urban district of Middlesex. Between Dollis Hill and Wembley Park, it is 7 m. N.W. of London and is served by the Met. Rly. Pop. (1931) 16,636.

Another Kingsbury is a village in Warwickshire. It is 124 m. from London, on the L.M.S. Rly. Pop. 1000.

Kingsclere Town of Hampshire. It is 9 m. from Haslingstoke. Here is a famous training stable for race horses. The chief industry is brewing. Pop. 2500.

King's College Name given to various English colleges. **King's College, Cambridge**, was founded in 1441 by Henry VI. It is under a provost and has a close connection with Eton. It is

noted for its chapel, one of the finest examples of Perpendicular architecture in existence.

King's College, London, is part of the University of London. It was founded in 1829 and the buildings are between the Strand and the Embankment. It is under a principal. Offshoots of the college are **King's College for Women** with buildings in the Strand and on Campden Hill, Kensington; **King's College School**, now at Wimbledon; and **King's College Hospital**, which has a fine range of buildings at Denmark Hill. The college was reorganised in 1908, when these branches were made independent.

Another **King's College** is a university at Halifax, Nova Scotia. It was opened at Windsor in 1790 and remained there until 1923 when, the buildings having been destroyed by fire in 1920, it was removed to Halifax. It then became associated with Dalhousie University.

King's Counsel In England, Scotland and Ireland a barrister, or advocate of superior rank. Any barrister can become a king's counsel on the recommendation of the Lord Chancellor or, in Scotland, of the Lord Justice General. He wears a silk gown and the act of becoming a king's counsel is called taking silk. He sits in court within the bar and cannot appear in a case unless a junior barrister appears with him.

King's County Former name of the county of the Free State now known as **County of Dublin** (q.v.).

King's Cross District of London. It is in the borough of St. Pancras, where the Euston Road, Gray's Inn Road, Galedonian Road and other main thoroughfares meet. Here is one of the great London railway stations, now part of the L.N.E. system. **King's Cross** has also stations on the Met. and tube railways. The district was formerly called **Battle Bridge**. In 1836 a monument to George IV. and William IV. was erected here and the present name taken. The monument was pulled down in 1845.

King's Cup Name of a prize offered to competitors in yachting and air races. For yachting the cup is given to the winner of a race at Cowes. For aviation it is awarded every year to the winner of an aeroplane race over a course of 700 or 750 miles. The aviation cup was instituted in 1922 and in 1930 was won for the first time by a woman, Miss Winifred Brown. In 1932 Capt. W. L. Hope won it for the third time.

King's Evidence Name given to a criminal who gives evidence against those associated with him in his offence.

King's Evil Name given in olden times to scrofula (q.v.) owing to the belief that sufferers from this disease could be cured by the touch of the king.

King's Inn Headquarters of the bar in the Irish Free State. It is conducted very much on the lines of the Inns of Court in London and dates from 1400, or earlier. It derives its name from the fact that Henry VIII. was its patron. The building in Henrietta St., Dublin, was erected in 1800.

Kingsland District of London. To the north of the city, it lies between Highbury and Dalston and north of Hoxton.

Kingsley Charles. English clergyman and writer. The son of a

clergyman, he was born at Holme, Devon, June 12, 1819, and educated at King's College, London, and Magdalene College, Cambridge. In 1844 he became curate and then vicar of Eversley. In 1860-69 he was Professor of Modern History at Cambridge, and in 1873 Canon of Westminster. He kept his living at Eversley until his death there, Jan. 23, 1875.

Kingsley was a writer of vigorous, healthy stories, including *Westward Ho* and *Hereward the Wake*. Other novels, *Alton Locke*, *Yeast* and *Hyppatia*, deal with social and religious problems. He also wrote a good deal of poetry, including *The Saint's Tragedy*, and two of the world's great books for children, *Heroes and Water Babies*. An early advocate of social reform, he was associated with the Christian Socialist movement. He wrote many articles under the name of Parson Lot.

Kingsley's daughter, Mary St. Leger, wrote novels under the name of Lucas Malet. They include *The Wages of Sin* and *Sir Richard Calmady*. She married the Rev. W. Harrison, rector of Clovelly, and died Oct. 27, 1931, at 79. Kingsley's younger brother, Henry Kingsley, also won a reputation as a writer. For a time he worked in the gold mines in Australia and was later a war correspondent. His novels include *Geoffrey Hamlyn*, *Ravenshoe* and *The Hillyars and the Burytons*. He died May 24, 1876.

Kingsley Mary Henrietta. English traveller. A daughter of G. H. Kingsley, who was a brother of Charles Kingsley, she was born in London, Oct. 13, 1862. Her intrepid journeys in the Dark Continent are described in her *Travels in West Africa*, 1897. She died at Simonstown, S. Africa, while engaged in nursing, June 3, 1900.

King's Lynn Borough, seaport and market town of Norfolk. It is near the mouth of the Great Ouse and is reached by a joint line of the L.M.S. and L.N.E. Ry's. One of the oldest seaports in England, it is full of historic interest. Its old guildhall contains some priceless relics. As a seaport Lynn has lost ground, partly owing to the closing of the river channels by sand. There is, however, some shipping, while fishing and rope making are other industries. Until 1818, King's Lynn, or Lynn Regis, sent one member to Parliament. Fanny Burney was born here. Pop. (1931), 20,580.

King's Messenger Name of four officials in the royal household. Their duties are to carry despatches to ambassadors and other persons in high position. Their badge is a silver greyhound.

King's Prize Prize for rifle shooting. It was first given in 1860 and until 1901 was called the Queen's Prize. The amount is £250, and it is awarded every year, being open to members of the forces throughout the empire. The shooting, which is at various ranges, first took place at Wimbledon, but since 1890 it has been at Bisley. In 1930 it was won for the first time by a woman, Miss M. E. Foster, and in 1931 A. G. Fulton created a record by winning it for the third time. In 1932 the winner was Sergeant-Major C. F. H. Bayly.

King's Proctor In England a high legal official. His business is to watch divorce cases in the public interest and to prevent collusion. His offices are at 12 Old Queen Street, Westminster, S.W.1.

King's Regulations Regulations issued under the authority of the king relating to the British navy, army and air force, covering their general organisation, seniority, leave, ceremonies, discipline, correspondence, financial and other returns, relations with the authorities in foreign places and in the dominions, etc.

King's Speech Address with which the king or his deputy opens each session of Parliament. It is prepared by the Government, and in it their programme for the coming session is outlined. It is read to both Houses assembled in the House of Lords and, after debate, an address of thanks is sent to his Majesty. There are similar speeches in the Parliaments of Canada, Australia, New Zealand and South Africa, where the Governor-General takes the place of the king.

Kingston Name of several places in England. Most are distinguished by an additional word, or words, as *Kingston-upon-Hull*, commonly called *Hull* (q.v.), and *Kingston-upon-Thames*. A smaller example is *Kingston Lacy* in Dorset.

Kingston-on-Soar is a village of Nottinghamshire. It is on the Soar, 10 m. from Nottingham, on the L.M.E. Ry. Here is the Midland Agricultural College. Kingston Hall is the seat of Lord Belper.

Kingston City and seaport of Ontario. It stands at the eastern end of Lake Ontario at the mouth of the Cataract River, 125 m. from Montreal. It is reached by both the C.P.R. and C.N.R., and is connected with Ottawa by the Rideau Canal. Flour milling and shipping, for which there are large docks, are prominent industries. Steamers go from here to other places on the Great Lakes and the St. Lawrence. Kingston occupies the site of Fort Frontenac, a frontier post. It was named after George III., and from 1841-44 was the capital of the country. Pop. 25,000.

Kingston City, seaport and capital of Jamaica. It stands on the south-east coast and has a good harbour. Kingston is a big trading centre and has a good deal of shipping. It is well served by railways. In 1907 great damage was done by an earthquake. Pop. 62,700.

Kingston Duke of. English title held from 1715-1773 by the family of Pierrepont. In 1627, Robert Pierrepont, a member of an old Nottinghamshire family, was made Viscount Newark, and in 1628 Earl of Kingston. In 1706 Evelyn Pierrepont, the 5th earl, was made Marquess of Dorchester and in 1715 Duke of Kingston. He was succeeded by his grandson, upon whose death in 1773 the titles became extinct. The estates passed to a nephew, Charles Meadows, who took the name of Pierrepont and was created Earl Mansvers in 1806. The duke's seat was Thoresby, near Mansfield.

An Irish title of Earl of Kingston has been borne by the family of King since 1768. The family seat is Kilronan Castle in Roscommon, and the earl's eldest son is called Viscount Kingsborough.

Kingston William Henry Giles. English writer. Born in London, Feb. 28, 1814, he was the son of a merchant who lived in Oporto. His first success came with his story for boys, *Peter the Whaler*, in 1851, and soon he became one of the most popular writers of adventure stories. Among them were *The Three Midshipmen* and *The Three Admirals*.

Over 150 others including *From Powder Monkey to Admiral*, which ran as a serial in the *Boy's Own Paper*. He died Aug. 5, 1880.

Kingston-upon-Thames

Borough and market town of Surrey, also the county town. It is a boating centre on the Thames, 12 m. from London, on the S. Rly. Saxon kings were crowned here and the coronation stone is a feature of the market place. The industries include brewing. There is a fine church. Kingston Hill is a favourite residential area. Pop. (1931) 39,052.

Kingstown Seaport of the Irish Free State, called by the Irish, *Dun Laoghaire*. It is on Dublin Bay, 6 m. from Dublin, on the Gt. S. Rly. Mail steamers run twice daily between Kingstown and Holyhead. There is a good harbour with two long and massive piers. Kingstown is also a pleasure resort and an urban district. The name of Kingstown was given to the place in 1821 when George IV. landed here. Pop. 19,000.

Kingstown is also the name of the capital of St. Vincent, Windward Islands.

Kingwood Urban district of Gloucestershire. It is practically a suburb of Bristol and is a coal mining area. Pop. (1931) 13,297.

Another Kingwood is a district in Surrey. It is 22 m. from London, on the S. Rly. A third Kingwood is a village in Gloucestershire.

Kingussie Pleasure resort of Inverness-shire. It is on the Spey, 46 m. from Inverness, on the L.M.S. Rly. Pop. 1200.

King William's Town Town of Cape Province, S. Africa. It stands on the Buffalo, 42 m. from East London. The centre of an agricultural area, it has a botanic garden and is known locally as King. Pop. 9600.

Kinkajou Small cat-like mammal, *Cercolopates caudivolutus*. It is known also as the Tree-Bear, and belongs to the racoon family. A native of Central and S. America, it is covered with soft, yellow-brown fur, and its tail is long and prehensile.

Kinmel Park Estate in Denbigh-shire. It is 4 m. from Rhyl. During the Great War a camp was formed here, and in 1919 this became a demobilisation centre. In 1929 the house and grounds were bought for a public school which aims at training boys for commercial life.

Kinnaird Baron. Scottish title borne by the family of Kinnaird. Sir G. P. Kinnaird, M.P., became the first baron in 1682. The 11th baron, Arthur Fitzgerald Kinnaird, who succeeded to the title in 1887, was a prominent footballer and a leader of the Evangelical Party, being president both of the Y.M.C.A. and the Foothill Association. The family seat is Rossie Priory in Perthshire.

Kinnoul Earl of. Scottish title borne by the family of Hay. Sir George Hay, Lord High Chancellor, was made an earl in 1633. The family seat is Balhousie Castle, Perthshire, and the earl's eldest son is called Viscount Dupplin.

Kino Gum of commercial and medical value. One kind is obtained from a tree that grows in India and another from an African tree. It is obtained by cutting the bark, and comes out dark red in colour. It is

soluble in alcohol. Being an astringent, kino is used in tanning and dyeing, especially the dyeing of cotton. It is also used in making wine and in a gargle for the throat.

Kinross Burgh and county town of Kinross-shire. It stands on Loch Leven and is on the L.N.E. Rly. Pop. (1931) 2525.

Kinross-shire County of Scotland, between Fifeshire and Perthshire. It has an area of 82 sq. m. In the county is Loch Leven. Kinross is the county town. Except in the south the surface is flat. The chief river is the Devon. The county joins with a division of Perthshire to send a member to Parliament. Pop. (1931) 7454.

Kinsale Urban district, market town and seaport of Cork, Irish Free State. It is 24 m. from Cork by the Gt. S. Rlys. Fishing is the chief industry. Kinsale Harbour, which is really the estuary of the Bandon River, is a fine and protected sheet of water. Pop. 2760.

Off the Old Head of Kinsale, a headland to the S.W., the *Lusitania* was sunk in 1915.

Kintyre District of Argyllshire, sometimes spelled Cantyre. It is a peninsula in the south of the county, between the Firth of Clyde and the Atlantic. It is 38 m. long and at its southern point, called the Mull of Kintyre, is a lighthouse. The coast of Antrim is only 73 m. away.

Kipchak Central Asian nomads of Altaian stock, more or less mongolised. Found mostly in the Soviet Republic of Uzbekistan, they comprise both the middle horde of the Kirghiz-Kazaks, descended from the mediaeval White Horde, and the Kazan Tartars descended from the Golden Horde.

Kipling Rudyard. English writer. He was born in Bombay, Dec. 30, 1865, son of John Lockwood Kipling. He was sent, to England and went to the United Services College, Westward Ho! In 1882 he returned to India.

In 1881 Kipling published a volume called *Schoolboy Lyrics*, but more important was the journalistic work he did between 1882 and 1890. This gave him a wide knowledge of Anglo-Indian and Indian life. In 1885 he contributed short stories to the *Civil and Military Gazette* at Lahore, and for a library of books issued by the firm of Wheeler, at Allahabad, he wrote many others. These are contained in the volumes *Plain Tales from the Hills*, *Soldiers Three*, *The Story of the Godsbyes*, *Woe Willie Winkie*, *The Phantom Rickshaw*, *Under the Deodars* and *The City of Dreadful Night*. The stories revealed Indian life to English readers in a new light, and on them the foundations of Kipling's fame were securely laid. In 1890 he published a powerful novel, *The Light that Failed*.

In the next 40 years, after he left India, Kipling was very busy, and the high quality of his work placed him in the forefront of English men of letters. His books are on a great variety of subjects, but each displays his uniquely individual touch. *From Sea to Sea* contains impressions of his travels. His verses are in *Barrack Room Ballads*, *The Seven Seas*, *The Five Nations* and *The Years Between*. His two *Jungle Books* are remarkable productions, and with them may be mentioned *Puck of Pook's Hill* and *Rewards and Fairies*, both written for children.

Volumes of short stories followed his early

ones. *Life's Handicap* and *Many Inventions* are chiefly Anglo-Indian in subject matter. Later came *The Day's Work*, *Traffics and Discoveries*, *Actions and Reactions*, *Debts and Credits*, *A Diversity of Creatures* and *A Book of Words*. *Stalky and Co.* relates the story of his school days. *Sea Warfare* deals with episodes in the Great War, on which he wrote other volumes. *Kim*, a novel, and the *Just So Stories* are almost as good as his best work. He wrote also *The History of the Irish Guards*, and with O. R. L. Fletcher *A History of England*. In 1930 he published *Thy Servant a Dog*, and in 1932 a new volume of stories, *Limits and Renewals*. In 1922 he was elected Rector of St. Andrews University, and delivered an address on Independence. His many honours include the Nobel Prize for literature in 1907.

In 1892 he married Caroline Balestier, and settled in Sussex. Their only son, John Lockwood Kipling, an officer in the Irish Guards, was killed in the Great War.

Kipper Originally a male salmon, dried and cured. The word is now used for a herring, split open and smoked.

Kirghiz Soviet republic in Asia. It is a district around the Sea of Aral and east of the boundary between Europe and Asia. It is divided into Kara Kalpakia and Kirghizia. The capital is Frunze. It covers 95,000 sq. m. and its population is 997,500. The republic, which is federated to the union at Moscow, was created in 1927. The name is that of the Kirghiz, a Mongol people who have long lived in this part of Asia.

Kirjath Hebrew word for "city" occurring in several Biblical place names. *Kirjath-jearim*, the city of woods, also called *Kirjath-baal*, is near Bethshemesh and was the resting place of the Ark of the Covenant before the Temple was completed at Jerusalem (1 Sam. vi., 1 Chr. xiii.). *Kirjath-sannah* and *Kirjath-sepher* were older names for the Canaanite town Debai, north of Beersheba (Josh. xv.). See **HEBRON**.

Kirkburton Urban district of Yorkshire (W.R.). It is 5 m. from Huddersfield, on the L.M.S. Rly. The chief industries are woollen mills and coal mines. Pop. (1931) 3184.

Kirkby in Ashfield Urban district of Nottinghamshire. It is a coal mining centre, on the L.M.S. and L.N.E. Rlys. Pop. (1931) 17,798. Adjoining is *Kirkby Bentinck*, a new mining centre on the L.M.S. line.

Kirkby-in-Furness is a village a few miles from Barrow, on the L.M.S. Rly.

Kirkby Lonsdale Market town and urban district of Westmorland. It stands on the Lune, 12 m. from Kendal, on the L.M.S. Rly. The bridge across the river dates from the 14th century. The town is the Lowton of *Jane Eyre*. Pop. (1931) 1370.

Kirkby Moorside Market town of Yorkshire (W.R.). It stands on the Dove, 29 m. from Whitby, on the L.N.E. Rly. The town is an agricultural centre. Pop. 1695.

Kirkby Stephen Market town of Westmorland. It stands on the river Eden, 10 m. from Appleby, on the L.M.S. Rly. Agricultural fairs are held. Pop. 1540.

Kirkcaldy Burgh, seaport and market town of Fifeshire. It stands

on the Firth of Forth, 26 m. from Edinburgh, on the L.N.E. Rly. The chief street of the burgh is 4 m. long and Kirkcaldy is known as the "lang town." The industries include the manufacture of linoleum, oilcloth and linen; there is also some shipping for which, there are modern docks. Adam Smith was born here. Pop. (1931) 43,874.

Kirkcudbright Burgh, seaport and market town of Kirkcudbrightshire; also the county town. It stands at the mouth of the Dee, 30 m. from Dumfries, on the L.M.S. Rly. A fine bridge crosses the Dee, and there is a good harbour on Kirkcudbright Bay. Pop. (1931) 2311.

Kirkcudbrightshire County of Scotland. It is in the south west, covers 900 sq. m., and has a long coast line on the Solway Firth. Kirkcudbright is the county town; other places are Newton Stewart and Castle Douglas. Most of the area is mountainous. The Dee, Cree, Ken and Ure are the chief rivers and there are a number of lochs and much picturesque scenery. Agriculture is the principal industry. The county was ruled by the great family of Douglas, who had a castle at Threave. Later the Kings of Scotland appointed a steward to look after it, and this post was held by the Maxwells until 1747. Hence it is sometimes called the Stewartry. It unites with Wigtownshire to send a member to Parliament. Pop. (1931) 30,341.

Kirkdale Village of Yorkshire (W.R.). It is 8 m. from Pickering. There is a Saxon church. In a cave discovered here in 1821 have been found the fossilised bones of the rhinoceros, and other animals extinct in Great Britain. Another *Kirkdale* is a suburb of Liverpool.

Kirke Percy, English soldier. Born about 1645, he fought in the war against France. After serving in 1681-4 at Tangier, of which for a time he was Governor, he raised a regiment (now the Royal West Surreys) which fought at Sedgemoor, and in Ireland for William III. The men were called *Kirke's Lambs*, because of the lamb on the regimental badge, and their cruelties after Sedgemoor made these lambs notorious. Kirke died at Brussels in Oct., 1691.

Kirkham Urban district and market town of Lancashire. A cotton and flax manufacturing centre it is 8 m. from Preston, on the L.M.S. Rly. Pop. (1931) 4031.

Another *Kirkham* is a village of Yorkshire (E.R.). It is on the Derwent, 16 m. from York, on the L.N.E. Rly. The remains of an abbey, now public property, include the gatehouse and the cloisters.

Kirkheaton Urban district of Yorkshire (W.R.). It is 2 m. from Huddersfield on the L.M.S. Rly. Woollen goods are manufactured. Pop. (1931) 2610.

Kirkintilloch Burgh of Dumbartonshire. It is 8 m. from Glasgow and is served by the L.N.E. Rly. and a canal. There are iron founding and chemical industries. Pop. (1931) 11,817.

Kirk Kilissee Town of Greece. In Turkey before 1918, it is 30 m. from Adrianople on the railway to Istanbul (Constantinople). In Oct., 1912, during the first Balkan war, it was the scene of a decisive Bulgarian victory over the Turks.

Kirkliston Town of Linlithgowshire. It is 9 m. from Edinburgh, on

the L.N.E. Rly. The little river Almond passes it. The chief industry is distilling and oil mining. Pop. 3700.

Kirkoswald Village of Cumberland. It is on the Eden, 15 m. from Carlisle. Another Kirkoswald, a village in Ayrshire, is associated with Burns and his Tam o' Shanter.

Kirkstall Suburb of Leeds. Here are the ruins of a famous 12th century Cistercian abbey. The remains include the roofless church, chapter house, refectory and other buildings. Kirkstall is on the L.M.S. Rly.

Kirkstone Pass in the Lake District. It is between Red Screes and Caudale Moor, and is 1500 ft. at the top.

Kirkwall Burgh and seaport of the Orkney Islands, also the county town. It stands on Mainland, or Pomona. Pop. (1931) 3517.

Kirriemuir Burgh of Angus. It is 8 m. from Forfar, on the L.M.S. Rly. Its chief industry is weaving. Sir J. M. Barrie was born here, and it is the Thruins of his stories. Pop. (1931) 3326.

Kirton Town of Lincolnshire. It is 4 m. from Boston, on the L.N.E. Rly. Pop. 2400.

It is sometimes called Kirton-in-Holland, to distinguish it from Kirton-in-Lindsey, which is also on the L.N.E. Rly., and 6 m. from Brigg. Pop. 1600.

Kish Ancient city in Mesopotamia. It was a centre of Akkad culture and recent excavations have revealed a great temple and a cemetery.

Kishon River of Palestine. It flows through the country to the Mediterranean Sea which it enters near Acre. On its banks Sisera was defeated (Judges iv.), and the prophets of Baal were killed by order of Elijah (1 Kings xviii.).

Kismet Moslem term for fate, or destiny. A play by Edward Knoblock (q.v.), is called *Kismet*.

Kitchen Room in a house or hotel where food is prepared. It is usually fitted with a range or cooking stove and has shelves, cupboards and other receptacles for crockery. In many houses a scullery serves as an adjunct. In large hotels the kitchens are great rooms with elaborate fittings. Some old kitchens with cooking implements of a bygone age, like that at Christ Church, Oxford, are very interesting. In times of need municipal kitchens are opened, where food is supplied free or where poor persons can cook their own food.

A **kitchen garden** is a garden where vegetables and fruit are grown.

A **kitchen midden** is the name given to mounds of domestic refuse left by prehistoric people. Anthropologists and archaeologists have made valuable discoveries about early man by examining them.

Kitchener City and river port of Ontario. Formerly called Berlin, it is 62 m. from Toronto, on the C.N.R. and C.P.R. The electric railways, trams and factories obtain their power from Niagara. Furniture is made, sugar is refined and there are agricultural industries. Pop. 21,800.

Kitchener Earl. English soldier. Horatio Herbert Kitchener was born in Co. Kerry, June 24, 1850, the son of Lieut.-Col. H. H. Kitchener. After a course

at Woolwich, he joined the Royal Engineers in 1871. He volunteered to serve in France during the war against Germany, but saw no fighting. From 1874-78 he was employed by the Palestine Exploration Fund, and from 1878-82 he was surveying in Cyprus. In 1882 he became an officer in the Egyptian army, and served in the campaigns in Egypt and the Sudan between that year and 1889, including the expedition for the relief of Gordon.

In 1892 Kitchener was made Sirdar, or Commander of the Egyptian Army, and in that capacity did a great work. He reorganised the forces and was responsible for the successful expedition to Dongola in 1896, and the victories at the Atbara and Omdurman that destroyed the power of the Mahdi and restored Khartum and the Sudan to British influence. He was made a baron and granted £30,000. In Dec., 1899, Kitchener left Egypt to serve as chief of the staff to Lord Roberts in S. Africa. He helped to change the fortunes of the struggle with the Boers, and, having succeeded Roberts as commander-in-chief, finished the war and assisted in making peace. He was then made a viscount and given £50,000 and the Order of Merit. From 1902-09 he was commander-in-chief in India, where he left his mark upon the organisation of the army.

In 1911 Kitchener returned to Egypt, this time as agent and Consul-General, and he was holding that position in 1914, although he was temporarily in England. On Aug. 5, having been made an earl, he was appointed Secretary for War, and he set to work to raise the force known as **Kitchener's Army**. In 1915, not altogether comfortable in his position (for, while seeing from the first the gravity of the outlook, he, like others, failed to grasp some of the essential and novel features of the tremendous struggle), he permitted some of his duties to be transferred to others and on June 5, 1916, he was sent on a mission to Russia. On the same evening his ship, the *Hampshire*, was lost; some say she struck a mine, and Kitchener was among the drowned.

Kitchener was unmarried and his titles and also his residence, Broome Park, Kent, passed to his elder brother, Henry Elliott Chevallier Kitchener (b. 1846), whose eldest son, called Viscount Broome, died in 1923.

There are various memorials to Kitchener, one being in St. Paul's Cathedral, another on the Horse Guards Parade, London, and a third at Marwick Head, near where he was drowned. Money raised by a national fund was devoted to founding scholarships of £150 a year. These are to train young men for commercial life and were at first given to those who had served in the Great War.

Kite Sub-family of birds of prey, particularly the common glade or red kite of Europe and N. Africa. This has reddish-brown plumage, but is now almost extinct in Britain. It is about 24 in. long and feeds on small birds and insects. The black kite, a rare visitant, and the Egyptian and Indian pariah kites are useful scavengers.

Kittiwake Bird belonging to the gull family. In colour it is white with a yellow bill. It is found chiefly in the N. Atlantic, breeding in Greenland and Spitzbergen (Svalbard), and visits the coasts of Britain. It feeds on fish and lays its eggs in nests in the cliffs. A variety with red legs is found in the N. Pacific. The young kittiwake is called a tarroch.

Kiwi New Zealand bird (*Apteryx*). There are three species, *A. mantelli*, *A. aus-*

tralis and *A. oventi*. They are rare and nocturnal, brown in colour with a long beak and only rudimentary wings, laying very large eggs for their size, which is about that of the common fowl.

Kleptomania Form of aberration exhibited in an uncontrollable propensity to steal. It sometimes attends epileptic insanity.

Klerksdorp Town of the Transvaal, S. Africa. It is 29 m. by railway from Potchefstroom, and is the oldest Boer settlement in the Transvaal. A stream divides the old village from the new town. Around the town are gold mines, and it is also an agricultural centre with important cattle markets. Near are irrigation works. Pop. 5600.

Klip River of Natal, S. Africa. It rises in the Drakenberg Mountains and joins the Tugola near Ladysmith. The district around Ladysmith is called the Klip River district.

Klipspringer Small variety of antelope. It is found in Africa, especially in rocky districts, and is an exceptionally good climber. Its name means rock jumper.

Klondyke River of the Yukon Territory, Canada. It joins the Yukon near Dawson City. In 1896 the discovery of gold in the Klondyke and its feeders caused much excitement. The district along the river is also called Klondyke.

Klopstock Friedrich Gottlieb. German poet. Born at Quedlinburg, July 2, 1724, he was educated for the Church at Jena and Leipzig. Instead, however, of becoming a pastor he devoted himself to writing religious poetry. He lived at Copenhagen on a pension granted to him by the King of Denmark and died at Hamburg, March 14, 1803. Klopstock's great work, *Der Messias*, was begun in 1748 and finished in 1773.

Kluck Alexander von. German soldier. Born May 20, 1846, he fought against Austria in 1866 and against France in 1870-71, being wounded at Metz. In 1906 he became a general. In 1914, when he was inspector general of the three army corps centred in Berlin, he was given command of the army that invaded Belgium. He entered Brussels, won other victories and marched towards Paris. He was attacked on the Marne and driven back to the Aisne, where his army entrenched itself. In 1918 he retired, and in 1920 he issued a book translated into English as *The March on Paris*.

Knacker (Icelandic *knakkr*, a saddle). Dealer who traffics in old or disabled horses. By English law a knacker must kill the horse delivered to him within two days. He is forbidden to work any horse sent to him, or to sell it alive, and he must keep a careful record in his books of the animals delivered to him. He must not kill any animal within sight of another animal waiting to be killed, nor must he cut off any of its hair before it is killed.

Knapweed (*Centaurea nigra*). Perennial plant of the order *Compositae*. Found in waste places and on dry meadowland it is two or three feet in height with hairy stems and small rough leaves. The flower heads, which resemble thistles, are bright purple in colour. It is sometimes known as the greater knapweed.

Knaresborough Market town and urban district of Yorkshire (W.R.). It is on the Nidd, 4 m. from Harrogate, on the L.M.S. Rly. The ruined castle is finely placed above the river. Near the bridge are St. Robert's Chapel, an old shrine, and the Dropping Well. St. Robert's Well is associated with the crime of Eugene Aram. Mother Shipton is also connected with the town. Pop. (1931) 5942.

Knebworth Village of Hertfordshire. It is 25 m. from London, on the L.N.E. Rly. Here is Knebworth House, the seat of the Earl of Lytton. The estate with its extensive grounds has been in the family since about 1500. The eldest son of the Earl of Lytton is called Viscount Knebworth.

Knee Joint Joint in human beings formed by the femur or thigh-bone, the flattened top of the tibia or main bone of the lower leg, and the patella or kneo cap. Powerful muscles, specially adapted to maintain man's erect attitude, permit of bending the knee and straightening the leg in a direct line, each movement being accompanied by a slight rotation. The joint is surrounded by a system of strong ligaments, lined with a synovial membrane producing lubricating fluid. Two internal ligaments cross between the two bony prominences at the end of the thigh-bone. Dislocation of the joint is rare, but cartilages may be ruptured or displaced.

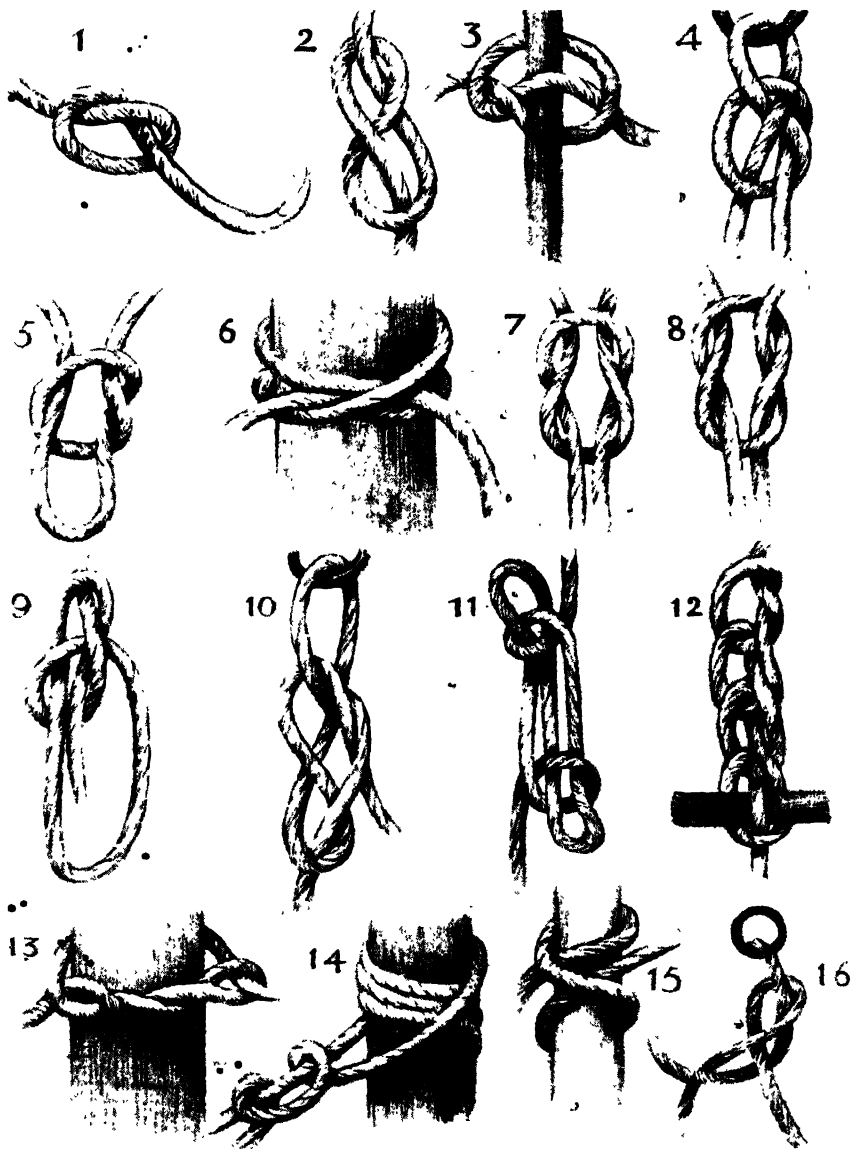
Kneller Sir Godfrey. English painter. Born at Lubeck, Aug. 8, 1646, he studied art in Italy, and in 1676 settled in London. He was appointed court painter by Charles II., and worked in England until his death. Kneller painted portraits of the ladies of the court of Charles II. and his successors to George I.; also Louis XIV. and Peter the Great. He also painted Sir Isaac Newton, and the 48 members of the Kit Kat Club. He was knighted in 1691 and died Oct. 19, 1723.

Kneller Hall, Twickenham, is the headquarters of the Royal Military School of Music.

Knickerbocker Surname, originally Knickerbacker, of a Dutch colonist in New York in the 17th century. From a prominent descendant Washington Irving borrowed the pen-name Diederich Knickerbocker when writing his burlesque *History of New York*, 1809.

Knight One who has received the honour of knighthood. The earliest knights were members of an order, such as the knights of the hospital of St. John and the Knights Templars. Others were made knights by the king or other high personage, usually for deeds of valour. The custom grew up of addressing a knight as sir before his Christian name and this is the usual title of all knights unless, as with some members of the great orders of knighthood, they hold a higher one.

There are ten classes of knights, all being created by the sovereign. Three belong to the great orders of knighthood, garter, thistle and St. Patrick, but most of these are peers. Six other orders, Bath, Star of India, St. Michael and St. George, Indian Empire, Royal Victorian Order and Order of the British Empire, consist of knights and members of lower rank, such as commanders and companions. The knights are called sir and use the letters G.C.M.G., K.C.B., K.B.E., or others indicating the order and rank. The equivalent of knight in the orders that admit women to



KNOTS.—How to tie the commoner sailors' and Boy Scout knots.
 1, Simple; 2, Figure 8; 3, Boat; 4, Shroud; 5, Running; 6, Builders;
 7, Reef; 8, Granny; 9, Bowline; 10, Capstan; 11, Dogshank; 12, Chain;
 13, Timber Hitch; 14, The Topido; 15, Waterman's; 16, Backwall
 Hitch.

membership is dame. The tenth class consists of **knights bachelor**. They belong to no order, but have a society of their own at 21 Old Buildings, Lincoln's Inn, London, W.C. In 1926 they secured the right to a distinctive badge. Persons knighted for services of a civic nature are usually made **knights bachelor**.

The wife of a knight is strictly speaking a **dame**, but in practice is addressed as **lady**. **Knighthood** is not hereditary. Some Irish chiefs are called by courtesy **knights, e.g., the Knight of Kerry**, and the title is used by the order of S. John of Jerusalem and the Primrose League.

Knight Charles. English publisher. The son of a bookseller and printer, he was born at Windsor, March 15, 1791, and joined his father in business. In 1811 they founded a local newspaper which Knight edited until 1821. In 1822 he moved to London and became a publisher. He started *Knight's Quarterly Magazine*, but is better known for the cheap literature he issued such as *The Penny Magazine* and *The Penny Cyclopaedia*. He worked in association with the Society for the Diffusion of Useful Knowledge and became publisher of *The London Gazette*. Knight was also an author and wrote *A Popular History of England* in eight volumes, *Lives of Shakespeare* and *Caxton*, and the autobiographical *Passages of a Working Life*. He died at Addlestone, March 9, 1873.

Knight Dame Laura. English artist. A daughter of Charles Johnson of Nottingham, she studied art first at Nottingham and later at S. Kensington. In 1903 she married a portrait painter, Harold Knight, and in the same year first exhibited at the Royal Academy. She was elected A.R.A. in 1927, and in 1929 was made a D.B.E. Her pictures deal chiefly with theatrical subjects and circus life, of which she has made a special study.

Knighthood Social and military system that existed in Europe in the Middle Ages. Men were made knights in various ways, one of the most usual being by a religious ceremony which included a vigil before an altar prior to taking vows. Others were made knights for gallantry on the field of battle.

The knights formed a distinct class. They fought on horseback and in armour, and were the landowners and aristocrats of their day. The system began to decay about 1300 and came to an end a century or so later.

The orders of knighthood, however, still survive in England and other monarchical countries and the honour of knighthood is still conferred by sovereigns. The senior order is the Order of the Garter. The Order of the Golden Fleece, which had an Austrian and a Spanish branch, was the greatest of the European orders of knighthood.

Knightlow Hill in Warwickshire. Here every year on Nov. 11, representatives of the parishes in the hundred of Knightlow meet. They stand round a hollow stone on the hill and into this throw the money due from them to the lord of the hundred. The steward of the Duke of Buccleuch calls them together and presides over the proceedings.

Knighton Market town and urban district of Radnorshire. It is on the River Teme, 185 m. from London, on the L.M.S. Rly. Pop. (1931) 1836.

Another Knighton is a suburb of Leicester.

Knightsbridge Thoroughfare in London. It runs

from Hyde Park Corner to Kensington Gore. Here are Harrod's Stores, the barracks of the Household Cavalry and Prince's Club.

Knight's Fee (or **Knight-service**). Piece of land the holder of which in feudal times was responsible for sending knights to serve the king in time of war. The obligation varied from time to time, and the relief paid on inheriting one of these fees was 100 shillings.

Knights Templars Mediaeval military order. It was founded at Jerusalem about 1118 to protect pilgrims to the Holy Sepulchre. It was given a home in Jerusalem in a palace called Solomon's Temple.

The order soon became rich and powerful. Its head was the Grand Master and it was divided into commanderies, each under a governor or master. The members were both monks and soldiers and took the vows of chastity, poverty and obedience. About 1300 it had 15,000 members and owned a great deal of property. The order was very active during the crusading period and fought also against the Moors. It was suppressed in 1312 by the Pope.

The Templars wore a white mantle with a red cross. Their banner was called *beauceant*, and their motto *Non nobis, Domine, non nobis, sed Nomini Tuo da gloriam*. The seal showed two knights riding one horse.

Knoblock Edward. English dramatist. Born in New York, April 7, 1874, Edward Knoblauch was educated at Harvard. In 1911 he achieved a notable success in London with his play *Kismet*. Another success was *A Milestone*, 1912, which, like *London Life*, 1894, he produced in association with Arnold Bennett. In 1916 he was naturalised in England and changed the spelling of his name.

Knock Village of Co. Mayo, Irish Free State. It is 6 m. from Clannorris.

Knockaloe Place in the Isle of Man. It is south of Peel and here, during the Great War, was a large internment camp for German civilians.

Knock-knee Deformity in which, when the lower limbs are straightened, the knees close inwards and the legs diverge. It may be due to rickets in young children, and is sometimes remediable by resting in bed, or using splints, or by surgical operation. It may also arise from excessive standing or weight-carrying when young.

Knockmealdown Range of hills in the Irish Free State. It is on the borders of Tipperary and Waterford. The highest point is 2600 ft.

Knole Residence of Lord Sackville. It is 2 m. from Sevenoaks and stands in a large park. It contains some magnificent rooms and priceless works of art. It was at one time a residence of the Archbishops of Canterbury and of the Earls and Dukes of Dorset (q.v.).

Knollys Name of a notable English family. It is descended from Sir Francis Knollys, Lord Mayor of London in the 15th century. Francis Knollys, a member of this family, was born July 16, 1837. He became a court official under Queen Victoria, private secretary to the Prince of Wales, afterwards Edward VII., and was private secretary to George V. until 1913, when he resigned.

KNOT

Knighted in 1886, he was made a baron in 1903, and a viscount in 1911. He died Aug. 15, 1924.

Knot Nautical measure of speed. A vessel is said to travel so many knots, this meaning a certain distance per hour. A nautical mile is 6080 ft., so if a ship travels 60,800 ft., in an hour, she travels at 10 knots. In former times the record was kept by tying knots in a piece of rope.

Another kind of knot is a fastening together of two pieces of rope or string. In addition to the ordinary knot, elaborate kinds are used by sailors and studied by Boy Scouts. These include the clove hitch and the reef knot, the latter being the simple knot tied a second time. Others are the granny knot, the bowline knot, the timber hitch and the blackwall hitch.

A third kind of knot is a portion of wood, harder than the rest, found sometimes in tree trunks.

Knot Wading bird of the plover family (*Tringa canutus*). Related to the sandpiper, it breeds in the Arctic regions and visits Britain in autumn and winter, haunting marshy flats for molluscs. It was fattened for the table in England in Tudor times. Its average length is about 10 in.

Knottingley Urban district of Yorkshire (W.R.). It is 3 m. from Pontefract on the River Aire, on the L.M.S. Rly. It is a river port on the Aire and Calder navigation system, and has some manufactures. Pop. (1931) 6842.

Knout Form of whip once used in Russia for the flogging of criminals and political prisoners. It consisted of triangular thongs of hardened leather interwoven with wire and bound together. Applied to the naked flesh it produced terrible wounds, and the results were often fatal. Its use was abolished by the Tsar Nicholas I.

Knowlton Village of Kent. It is 9 m. from Canterbury. As the result of a newspaper competition Knowlton was awarded the prize for sending, voluntarily, the highest proportion of its male inhabitants to the Great War. A granite cross records this fact.

Knowsley Residence of the Earl of Derby. It is 8 m. from Liverpool. It is a large house standing in a park of 2500 acres and most of it dates from about 1700. The picture gallery is especially fine. The estate came to the Stanleys when, in the 14th century, one of them married the heiress of the Lathams. In 1931 the Earl of Derby sold 1700 acres of the estate to the Corporation of Liverpool for housing purposes.

Knox John. Scottish reformer. He was born near Haddington about 1515 and attended one of the Scottish universities, probably St. Andrews. When a priest and tutor in a nobleman's family his friendship with George Wishart led him to join the reformers just after the murder of Cardinal Beaton in 1546. He was taken prisoner by the French when they captured the castle of St. Andrews, and was for a time a galley slave. In Feb., 1549, he was released, at the instance of Edward VI., and during that king's reign he lived in England. He was offered the Bishopric of Rochester, made a royal chaplain, and assisted in the preparation of the articles in the Prayer Book.

In 1553 Edward died and Knox went to Dieppe and then to Geneva, where, as at Frankfurt and elsewhere, he made a name as a preacher. He returned definitely to Scotland

750

KNUTSFORD

In 1558. The reformers were then in a position of power, and Knox, full of the teaching of Calvin, was soon their leading spirit. He won many adherents by his preaching, but was equally zealous as a politician. He made a treaty with England, now under Elizabeth, gained for himself and his friends the direction of affairs and proceeded to make Protestantism the religion of the country.

In 1561 the young Queen Mary returned to Scotland and quickly roused the anger of Knox, who, however, retained a good deal of power. When Mary fled to England, Knox and his friends were again dominant, but the murder of the Earl of Moray in 1570 was a great blow to them. Knox went to St. Andrews to be among his friends, but returned to Edinburgh to preach once more in St. Giles'. He died there Nov. 24, 1572.

Knox was twice married, once to Marjory Bowen and secondly to Margaret Stewart. His chief book is his *History of the Reformation in Scotland*. In 1558 at Geneva he wrote *The First Blast of the Trumpet Against the Monstrous Regiment of Women*. Knox was intolerant and a fanatic, but he has left his mark for good on Scotland, the educational system of which owes much to the ideas of his *Book of Discipline*.

Knox Ronald Arbuthnot. English writer. Born Feb. 17, 1888, one of the four brilliant sons of Rev. E. A. Knox, Sanskrit scholar and in 1903-21 Bishop of Manchester, he was educated at Eton and Balliol College, Oxford, where he had a fine career. He became fellow and lecturer at Trinity College, and, having joined the Roman Catholic Church, was later made chaplain to the Roman Catholic students in the University. Father Knox has written a good deal of fiction as well as more serious works. His books include *The Victim Murder*, *Essays in Satire*, *Caliban in Grub Street*, and *The Belief of Catholics*.

Knox's eldest brother, Edmund George Valpy Knox (born 1881) was educated at Rugby and Corpus Christi College, Oxford. He joined the staff of *Punch*, and as Evoc became known for his humorous writings, many of which have appeared in book form as *Fancy Now*, *It Occurs to Me*, *Here's Misery* and *The Other Eden*.

Knucklebones Game very popular in ancient times and the forerunner of dice games. At first played with the knuckle bones of sheep, which were thrown and caught on the back of the hand, it is now played with stones, and is also known as Dibs, Fivestones, Jackstones and Chuckstones.

Knur and Spell English ball game of mediæval origin. It requires a knur or small ball, a stout-sprigged trap or spell, and a stick. The stick, called the pommel, is about 4 ft. long with a flexible handle and a head of hardwood. The spring makes the ball rise, whereupon the player hits it with the stick as hard as he can. The longest drive wins.

Knutsford Market town and urban district of Cheshire. It is 15 m. from Manchester on the Cheshire Lines Rly. Knutsford is known in fiction as *Cranford*, and Mrs. Gaskell, the authoress of that work, who lived here for many years and died here, was buried in the old Unitarian Graveyard. The name is taken from King Canute. Pop. (1931) 5878.

Knutsford Viscount. English title borne by the family of Holland. Henry Thurstan Holland, a son of a physician,

Sir Henry Holland, was born Aug. 3, 1825. He went to Harrow and Trinity College, Cambridge and became a barrister. Having been for some years in the Colonial Office, he sat in the House of Commons from 1874 until 1888. In 1885 he was Financial Secretary to the Treasury; in 1886 Vice-President of the Council, and in 1888-92 Secretary for the Colonies. He was made a baron in 1888, and a viscount in 1895. He died Jan. 29, 1914.

Knutsford's son and successor, Sydney Holland, the 2nd viscount, was best known for his splendid work for the London hospitals. He was chairman of the London Hospital and devoted his life to collecting funds for its support. He died July 27, 1931, and was succeeded by his brother, Arthur Henry Holland-Hibbert (born 1855), of Munden, Walford, as 3rd viscount.

Koala (*Phascolarctus cinereus*). Native name of a marsupial mammal. Found only in Australia, it is stout and clumsy, tailless, with ashy-grey fur and tufted ears. Living in eucalyptus trees, it feeds on their leaves and tender shoots, occasionally digging for roots, which it stores in its cheek pouches. Its average length is about 2 ft.

Kobe City and seaport of Japan. Sometimes called Hyogo, it is 22 m. from Osaka, on the west coast of the Inland Sea. There is a good deal of shipping and the industries include shipbuilding. The city was founded in 1868 and a fine harbour has been built. Pop. 644,000.

Koch Robert, German scientist. Born Dec. 11, 1843, he was educated at the University of Göttingen, and became a doctor. He practised at Hanover, but soon gave his time chiefly to research work, being, in 1880, made a member of the Imperial Board of Health in Berlin. In 1882 he discovered the bacillus of tuberculosis, and a little later the bacillus of cholera and phthisis. In 1885 he was made Professor at Berlin University, and Director of the Institute of Hygiene, and in 1891 Director of the Institute for Infectious Diseases. Later he spent much time in S. Africa in researches into cattle diseases. Tuberculin, or the lymph cure for tuberculosis, was another of Koch's discoveries. On these he wrote several books. In 1905 he received the Nobel prize for medicine, and he died May 28, 1910.

Koh-i-nur Name given to a famous diamond. Said to have been found at Golconda, India, it originally weighed 186 carats. Formerly in the possession of the Mogul emperors and the later Indian princes, in 1849 it was presented to Queen Victoria, was recut to 106 carats, and now forms one of the British crown jewels.

Kohl Powder used in Egypt for darkening the eyes. It was used by Jezebel (2 Kings ix.).

Kokra Timber obtained from a tree in Burma called *Aporosa dioica*. It is very hard and is used for musical and scientific instruments.

Kola Nut of an African tree, also called gum. It is about the size of a walnut and is very bitter to the taste. It contains a good deal of caffeine and the natives eat it as a stimulant. The tree on which it grows is an evergreen, sometimes 40 ft. high, and bearing pale-yellow flowers.

Kolubara River of Yugoslavia. It rises near Valievo and flows mainly north to the Sava. In Nov. and Dec.,

1914, a battle was fought along its banks between the Austrians, who had invaded Serbia, and the Serbians. It lasted nearly a month, but in the end the Austrians were driven out.

Komati River of S. Africa. It rises in the Transvaal and flows through Swaziland and Mozambique to Delagoa Bay. Its chief tributary is the Crocodile and where the two unite is the village of Komati Poort. This is 58 m. from Lourenço Marques.

Komintern The Third, or Communist, International. It is the international organisation of the Communist party of all nations, and was founded in March, 1919. Its chief purpose is to hasten world revolution, and it rejects parliamentarism as a means to this end. It is an association bound together by a common programme and principles. It organises "cells," which work in different places, to the common end, and are subordinated to the party as a whole.

Konia City of Turkey. It is in Asia Minor, about 300 m. from Smyrna. There are manufactures of carpets and silks, and a considerable trade in agricultural produce. The name is sometimes spelled Konieh. Pop. 47,300.

Königgrätz (or Kralové Hradce). City of Czecho-Slovakia. It is 14 m. from Prague. Near is the village of Sadova, after which the Germans called the battle in which they routed the Austrians in 1866. Pop. 13,100.

Königsberg City and river port of Germany and chief town of E. Prussia. It stands near the mouth of the Pregel, 366 m. from Berlin. The university is an old foundation, but has fine modern buildings, among them an observatory and a library. The castle is imposing.

There are large modern docks, and the industries include shipbuilding, the manufacture of machinery and chemicals, and the preparation of foodstuffs. The city, which is a railway centre, was founded by the Teutonic Order and later was the capital of the Dukes of Prussia. It has a broadcasting station (217 M., 0.5 kW.). Pop. 280,000.

The **Königsberg** was the name of a German cruiser destroyed in the Rufiji River, E. Africa, in July, 1915.

Koodoo African antelope, *Strepsiceros capensis*. Tawny with vertical white stripes on the sides and reaching 5 ft. at the shoulder, it is exceeded in size only by the eland, to which it is allied. The horns, present only in the male, are spirally twisted.

Kootenay River and lake of N. America. The river rises in Canada in the Rocky Mountains, but part of its course is in the United States. Entering Canada again it passes through Kootenay Lake to the Columbia river. It is 400 m. long.

Kootenay Lake is in the south-east of British Columbia. It is 60 m. long and covers 220 sq. m. Kootenay is also the name of a pass across the Rocky mountains. This is between the provinces of Alberta and British Columbia, just north of the international boundary.

Kopeck Russian coin. It is the hundredth part of a rouble, or nominally something less than a halfpenny.

Kopenick Town of Prussia. It is on an island in the Spree, 10 m. from Berlin. Pop. 31,000.

The Captain of Kopenick was a cobbler,

Wilhelm Voigt. In Oct., 1906, he dressed himself as an army officer, and with an imposing guard, pretended he had come on important business to the burgomaster. He thus obtained a good deal of money, but was soon arrested. He died in 1918.

Kopje Dutch name for the flat round-topped elevations that are scattered over the tablelands of S. Africa. In the Great Karroo and elsewhere compact lava-sheets of geological age have been weathered and fretted into hillocks up to 100 ft. high. They greatly influenced operations in the S. African War, 1899-1902.

Koran The Sacred book of the Mohammedans. It claims to be a divine revelation, communicated through the angel Gabriel at intervals over 23 years to the Prophet Mahomet. At his dictation various scribes wrote them down on scattered fragments of parchment, stone, palm ribs and other materials. These were traditionally collected by Zaid at the behest of Mahomet's successor, Abu Bekr, and a definite text was afterwards prepared for the Caliph Othman. Islam's supreme authority on matters of faith, morals and law, the Koran is a rhymed prose rhapsody of 6000 verses. It is divided into 114 *suras*, and opens with the *Fatiha*, the prayer repeated five times daily by all devout Moslems.

Korea District of Asia, also called Chosen. A peninsula on the mainland it was formally annexed by Japan in 1910. It is 600 m. long and covers over 85,200 sq. m. Its northern boundaries are Feng-Tien and Manchuria: on the west is the Yellow Sea, on the east the Sea of Japan. It includes over 1000 islands. The land is forested and mountainous, and the rivers are short and rarely navigable. Seoul, or Keijo-fu, is the capital: other large towns are Fusan-fu, Helgo-fu (the old capital), and Taiky-fu. Seoul, Chemulpo, Fusan and Gensan are four of several open ports.

Rice, barley, wheat, beans, tobacco and cotton are grown and cattle are reared. Gold, iron ore and coal are mined to a slight extent, fishing is carried on, and fruit is grown. There is a railway system and there are many good roads. The Central Bank is the bank of Chosen: the chief coin is the yen.

The Koreans are physically a fine race with a culture of their own. Their language, intermediate between Mongol, Tartar and Japanese, contains many Chinese words, and their written language is a mixture of Chinese and native characters.

HISTORY. Korea, whose troubled history goes back 1000 years B.C., was an independent kingdom in the 10th century. Its rulers were called emperors until late in the 19th century, for a great part of which the country was the victim of much unrest. After the devastating invasion of the Japanese in 1592-98 until recent times it was nominally under Chinese suzerainty. This was ended by the Chino-Japanese War of 1894-5, by which time the Japanese had important trading interests in the peninsula. After the Russo-Japanese War of 1904-5 Korea was virtually a Japanese protectorate until it was formally annexed by Japan in 1910, when a Governor-General was appointed and members of the Korean imperial house were given Japanese patents of nobility. Since then its material prosperity has increased considerably. The name is also spelled Corea. Pop. 19,100,000.

Korniloff *Lavr Georgievitch.* Russian soldier. He was born in Siberia, the son of a Cossack, and was trained

for the army. He fought for the Boers in S. Africa, 1899-05, and served against Japan in 1904-05. During the Great War he saw service and was taken prisoner, but he quickly escaped and as leader of an army took part in the offensive of July, 1917, winning a notable victory over the Austrians. He was then put in charge of all the Russian armies, but quarrels soon broke out between him and Kerensky. He then formed an army in the south of Russia and fought against the Bolsheviks until he was killed in the Caucasus, March 31, 1918.

Kosciusko Mountain of New South Wales, the highest in Australia. It is in the Australian Alps and reaches 7328 ft.

Kosciusko *Tadeusz.* Polish soldier. Born in Lithuania, Feb. 12, 1746, he became a soldier and served in the French Army. He fought for the American colonists against Great Britain, and then led the Poles against the Russians. Following the partition of 1794, he set up a government in Warsaw, but after one or two victories, was defeated by both Prussians and the Russians. He was taken prisoner, but was set free in 1796, and lived in Switzerland. On Oct. 15, 1817, he was killed by his horse falling over a precipice at Soleure.

Kosher Jewish word denoting food or culinary vessels made fit and clean by Talmudic ritual. As Jews are forbidden to swallow blood, beasts are killed for them by their own butchers who sharply sever the windpipe. The meat is soaked in water, salted and washed thrice.

Kossovo District of Yugoslavia. A plain about 50 m. long, it is near the frontier of Albania. The name means the field of blackbirds.

In 1389 the sultan, Murad I., defeated the Serbs here, and in 1448 Murad II. defeated the Hungarians under Janow Hunyadi. There was fighting here during the Balkan War. In Nov. 1915, the Serbian armies gathered to resist the advance of the Germans. After some hard fighting they were compelled to retreat. Many perished in the cold, but others were rescued by Allied help, and taken to Corfu.

Kossuth *Lajos (Louis).* Hungarian leader. Born Sept. 19, 1802, he was educated at Budapest and became a lawyer. In 1832 he was elected a member of the diet at Presburg, and was soon prominent among the advocates of political and social reform. For expressing his opinions in a paper he edited he passed three years in prison. Seven years later, in 1847, he became a member of the diet of Hungary, and in 1848 was the recognised leader of the party that demanded independence for the country. His energy raised a national force, and the diet declared for independence with himself as governor, or dictator. The movement failed, partly because foreign countries would not assist, and in 1849 Kossuth resigned his office and went to Turkey.

For the rest of his days Kossuth was an exile in England, where he was received as a hero. His *Memoirs of My Exile* is an English translation of one of his books. He died in Turin, March 20, 1894. He had refused the offer of pardon and had lost his nationality, but his body was taken to Buda for burial.

Kossuth's son, *Ferencz Kossuth* (1841-1914), was a prominent politician in Hungary from 1895 until his death.

Koumiss Drink made from the milk of the mare and the camel. Obtained by allowing the milk to ferment, it

is drunk by the Tartars and other Asiatic peoples. It has an acid taste, but is serviceable as a diuretic and for other purposes in medicine. It can be made from cow's milk.

Kovno City of Lithuania, also called Kaunas. It is on the Niemen, 60 m. from Vilna, and is the capital of the republic pending the recovery of Vilna, which is also claimed by Poland. The city has a number of manufactures, does a considerable trade in grain, etc., and is an important railway junction. There is a large Jewish element in the population. Pop. 97,800.

Kowloon Peninsula in China near Hong Kong. It was ceded to Britain in 1860 and is part of the colony. At one time there was here a large city of which only the walls remain. Near its site a new town has been built.

Kraal Collection of huts around a cattle enclosure. It is sometimes stockaded with timber fences or mud walls. Kraals are built by the Kaffirs and Hottentots and the word is also used for similar villages in E. Africa, and sometimes for enclosures for animals.

Krakatoa Volcanic islands in the Strait of Sunda. Midway between Sumatra and Java, it covers 18 sq. m. In Aug., 1883, an eruption here destroyed 35,000 lives, did enormous damage and set up world-wide disturbances. About two-thirds of the island disappeared.

Kraken Fabulous sea monster of Scandinavian legend. Supposed to be of enormous size, it has been likened by an old Norwegian writer to an island appearing in the water with arm-like appendages resembling those of an octopus. It is the subject of one of Tennyson's early poems.

Kran Persian coin. The monetary unit of the country, it is coined in silver and worth about 4d. Ten krans make a toman.

Krassin Leonid Borisovitch. Russian revolutionary. Born in 1870, he entered business life, but becoming associated with the extremists was, for a time, an exile. He had returned to Russia when the revolution began in 1917, and as one of its leaders he helped to arrange the Treaty of Brest-Litovsk, and became a minister in the new government. In 1920, and again in 1921, he was sent on a trade mission to England, and he represented the Soviet Government in London in 1925-26. He died in London, Nov. 24, 1926.

Kreisler Fritz. Austrian violinist. Born in Vienna, Feb. 2, 1875, he studied in Vienna and Paris, and soon showed exceptional powers. He toured the United States in 1899, and first appeared in London in 1903. He served in the Austrian Army during the Great War and was wounded. He has since made several appearances in London, being regarded as the world's greatest violinist.

Kremlin Russian word for a citadel. The most famous is the kremlin at Moscow. It stands on a hill overlooking the river Moskva and covers about 100 acres, the whole being surrounded by a wall.

Kriemhild Figure in German legend. A sister of the King of Burgundy, she married Siegfried, King of the Nibelungs, her dowry being the Nibelung hoard. Siegfried was then murdered by Hagen and Kriemhild married the King of the Huns. Her life, thenceforward, was devoted to vengeance. She gave a feast to Hagen and

others; this was followed by a fight in which many were killed. After the struggle she killed Hagen with Siegfried's sword, and was then killed by Hildebrand. The story is told in the *Nibelungenlied*, and figures in Wagner's opera sequence *Der Ring des Nibelungen*.

Kris Dagger used by the Malays. It has usually a sinuous blade. The handle is commonly of wood, but some examples are of ivory, with a decorated scabbard.

Krishna Hindu deity. A descendant in the Mahabharata, he later became Vishnu's eighth avatar or incarnation. His popularity throughout N. India is based on legends, which make him a cowherd lad associated with his favourite mistress Radha. Usually painted blue, he is represented as standing on a snake, sometimes playing a flute, and with four hands.

Krithia Village of Gallipoli. It is about 4 m. from the end of the peninsula, and was the scene of severe fighting in 1915. It was attacked by the British on April 28, but the Turkish defences were too strong for them to reach it. On May 6-8 there was a further attack which also failed, but on June 4, a third attack resulted in the gain of a good deal of ground. Another attack, also partially successful, took place on June 28. A further effort to advance was made in August and on Nov. 15 the Turkish positions were assailed for the last time, successfully, but in the following January Gallipoli was evacuated.

Krone Monetary unit of Norway, Sweden, Denmark and Iceland. The word means crown. It is worth about 1s. 1½d. and normally 18 g to the £ sterling. It is divided into 100 ore. Before 1925 the krone was the monetary unit of Austria and was also used in Hungary.

Kronstadt Seaport of Soviet Russia. It stands on an island at the mouth of the Neva, 20 m. from Leningrad. It was founded in 1703 as a harbour for the Russian capital, and before the Great War was a naval station, strongly fortified. A canal links it with Leningrad. The dockyard is maintained by the Government. Pop. 21,000.

Kronstadt City of Rumania, now known as Brassó or Brasov. Beautifully situated at the foot of the Transylvanian Alps, it was until 1919 in Hungary. The inner town has remains of 16th century fortifications. It is now a banking centre, and has oil refineries and cement works. Pop. (1930) 56,234.

Kroonstad Town of the Orange Free State. It is 129 m. from Bloemfontein and 880 from Capetown, and is an important railway junction. It is the centre of an agricultural district. Pop. 9300.

Kropotkin Peter Alexievich, Prince. Russian geographer, author and revolutionary. Born at Moscow, Dec. 9, 1842, he entered the Corps of Pages at St. Petersburg in 1857, and in 1862 went with a Siberian Cossack regiment to Siberia, where he carried out two geographical surveys. In 1871 he explored the glacial deposits of Finland and Sweden, and in 1872 he visited Switzerland. Later, becoming an anarchist, he spread nihilist propaganda on his return to Russia. He was several times arrested in Europe, but escaped to England, and settled there, 1883-1917, when he returned to Russia. He died Feb. 8, 1921.

Kru Negro people. They live in scattered communities along the coastland of

Liberia. They display an aptitude for seafaring which has led to their contracting as Kru boys for service on vessels navigating the Guinea coast. They practise face marking, tattooing and tooth mutilation. They number over 40,000.

Kruger Stephanus Johannes Paulus. Boer politician. Born at Colesburg in Cape Colony, Oct. 10, 1825, he went as a boy into the Transvaal and settled there. In 1880 he was a leader in the revolt against British annexation, and was the active spirit of the provisional government during the war of 1880-81. In 1883 he was elected President, an office he still held when difficulties arose between Great Britain and the Transvaal in 1899. Stubbornly hostile to concessions of any kind, he must bear some of the responsibility for the war that followed. In 1900 he went to the Netherlands, but he was in Switzerland when he died, July 14, 1904. In 1902 he wrote a volume of memoirs. Kruger combined a hard and narrow religious creed with much political astuteness.

Krugersdorp Town of the Transvaal. A gold mining centre at the western end of the Rand, it is 20 m. from Johannesburg. Pop. 42,000.

Krupp German family. Friedrich Krupp, born in 1787, started in business at Essen as a maker of iron and steel in 1812. He died in 1826, and the business was conducted by his son Alfred. He made it a very successful concern and when he died, July 14, 1887, left it to his son Friedrich Alfred Krupp. He died Nov. 22, 1902, leaving an only daughter, Bertha, who married Gustav von Bohnen und Halbach.

The Krupp works made railway material on a large scale, but were best known as armament works. Guns, ammunition, armour-plate and other war material were turned out in immense quantities before the Great War. The firm had branches at Annen and elsewhere, and ship-building yards at Kiel. Something like 80,000 men were employed, and for them there were welfare organisations on an elaborate scale. After the Great War the works were devoted to the making of electrical, agricultural and other kinds of machinery, as well as railway plant.

Krypton Very rare element having the symbol Kr and atomic weight 82.92. It occurs in extremely minute quantities in the atmosphere and has been found in various gases given off from the waters of mineral springs. It is distinguished by the bright yellow and green lines in its spectrum.

Kubelik Jan. Bohemian violinist. Born July 5, 1880, near Prague, he learned to play from his father, a market gardener. In 1898 he made his debut in Vienna and tours in Europe and the United States made him one of the leading violinists of the day. He married the Countess Czaky Szell.

Kublai Khan Mongol Emperor of China. He was born about 1216, the grandson of Jenghiz Khan. In 1259 he became grand khan of the Mongols. His great work was the conquest of China, which occupied him some 20 years. He then became head of a great Mongol Empire with his capital at Peking, where he held a splendid court. Under him Buddhism became the State religion. His empire lasted only until 1368. Kubla Khan was the patron of Marco Polo, and Coleridge wrote a fragmentary poem on him.

Kufah Village of Iraq. It is 90 m. to the south of Bagdad. Here the caliphs lived before moving to Bagdad. It gives its name to a script used for the earliest copies of the Koran.

Kufra Group of oases in Libya. They are near the border of Egypt and are the headquarters of the Senussi. Caravan routes go across the desert, but few Europeans have visited the district.

Ku Klux Klan American secret society. It was founded in Tennessee in 1865 and developed into an elaborate and organised movement. Its aims were to maintain the purity and dominance of the white race against the negro, and it was soon very strong in the southern states. The head was the grand wizard; other officials were grand dragons, grand giants and grand titans; every member was a ghoul. Terrorism was freely employed. In 1871-72 laws were passed forbidding these secret societies and after a time the Ku Klux Klan disappeared. In 1915 the society was revived in Georgia. Its aims were practically the same, the dominance of the white, or what was called 100 per cent Americanism. Its influence was also directed against Roman Catholicism.

Kumanovo Town of Yugoslavia. It is 20 m. from Uskub. In Oct., 1912, the Serbians gained a great victory over the Turks here, the fighting occupying three days. During the Great War the town was taken by the Bulgars in Oct. 1915, and was not regained by the Serbs until Sept., 1918.

Kumasi Chief town of Ashanti, sometimes spelled Coomassie. It is 160 m. from Sekondi on the coast. Pop. 24,000.

In 1874 British troops entered Kumasi and destroyed a good part of the town. Another expedition was sent against it in 1896, when a British resident was installed. In 1900 the British in the town were attacked by the tribesmen, but held out from March till July when they were relieved by a force which met with stubborn resistance. See ASHANTI.

Kümmel Name of a popular liqueur. It is made of sweetened spirit flavoured with cumlin and caraway seed. The name is the German word for cumlin.

Kun Bela Hungarian agitator of Jewish extraction. Born in 1886 he became a lawyer and a journalist. After the Great War, in which he served, he set up a Bolshevik republic in Hungary. This only lasted for a few months. He then went to Russia but was again agitating in Hungary in 1927.

Kuomintang Political party in China. It is composed of the followers of Sun Yat Sen and stands for a policy of China for the Chinese. It became prominent in 1927, its strength being chiefly in the south of the country.

Kurd People of mixed stock inhabiting the region loosely called Kurdistan. This is now divided among Turkey, Persia and Iraq, the Kurdish population being about 1,500,000. Descended from the Carduchi who opposed Xenophon's retreat in 400 B.C., they are partly settled, partly nomadic. They are mainly Mohammedans.

Kurdistan District of Asia Minor. It is part of the Turkish Republic and its chief town is Diarbekir. It lies to the south of Armenia and has the Euphrates

on the west. It is inhabited chiefly by nomads. The boundaries have never been clearly defined.

Kuria Muria Group of five islands off the coast of Arabia. They belong to Great Britain and cover about 30 sq. m. They are about 750 m. from Aden and on them guano is found. The islands, which serve as a landing place for the Red Sea cable, are peopled by a few Arabs. They are administered from Aden.

Kurile Group of 31 islands off the coast of Japan. Their Japanese name is Chishima and the inhabitants are chiefly fisherfolk. They extend for 150 m., almost to Kamchatka, and have an area of 6200 sq. m. Pop. 5000.

Kuroki Count Tamesada. Japanese soldier. Born in 1844, he entered the army and won a reputation during the war with China. In 1904 he was given command of an army and he led this to victory over the Russians at the battles of the Yalu and Mukden. He died Feb. 4, 1923.

Kuropatkin Alexei Nikolaievitch. Russian soldier. Born in 1848, he became an officer and gained experience with the French army in Algeria in 1874. He held a staff appointment in the Russo-Turkish war of 1877-78 and added to his reputation by exploits in Turkistan and Caucasus. In 1898 he became Minister for War and in 1904 was chosen to command the forces against Japan. After the Russian defeat at Mukden he was superseded, but was given another command. He was put in command of a group of armies during the Great War and in 1916 went as governor to Turkistan. Later he was arrested and on Feb. 10, 1921, he died in Moscow.

Kut Short name for Kut-el-Amara. A town of Iraq, 290 m. from Basra, it is almost encircled by the river Tigris. It was rebuilt after the Great War and has some modern buildings. There is a cemetery for British and Indian soldiers.

A good deal of fighting took place at Kut during the Great War. In Aug. 1915, a British force was sent against the Turks defending it, and a battle took place on Sept. 28, the British being victorious. The British, under Sir C. Townshend, then moved further up the river, but met with defeat at Ctesiphon and fell back on Kut in Nov. Kut was fortified and was soon surrounded by Turkish troops. Between Jan. and April, 1916, several attempts to relieve Kut were made, but failed, and on April 28, when the force was at starvation point, 9000 troops, 6000 being Indians, surrendered. In Jan., 1917, new forces having been collected and put under Sir Stanley Maude, the campaign for its recovery was begun. There was some hard fighting, but on Feb. 23, 1917, the town was occupied by the British.

Kuwait State of Arabia. It is on the N.W. shore of the Persian Gulf and is ruled by a sheikh, or sultan. The chief town is Kuwait. It has a fine harbour and does a fair amount of trade. The sheikh is on friendly terms with the government of India. Pop. 50,000.

Kvass Russian alcoholic beverage. It is made by fermenting rye meal, dough or bread, or wheat or barley meal, sugar and fruit being added. It contains from 1 to 2 per cent. of alcohol. It is made both commercially and in the home.

Kyd Thomas. English dramatist. Born in London in 1558, he was educated at Merchant Taylors' School. His first play, *The Spanish Tragedy* (1584-89), was popular for many years. He later became friendly with Marlowe, and was arrested with him for "blasphemies" and imprisoned until after Marlowe's death, when his patron forsook him. He died in poverty in 1594. *The Spanish Tragedy* was long the best-known play in Europe, and was played as a stock piece in Germany and Holland until the eighteenth century. He also wrote *Soliman and Perseda* (1588) and *Cornelia* (1593-94).

Kyle District of Ayrshire. It lies between the rivers Doon and Irvine and is one of the districts into which the county was at one time divided.

Kylemore Lake or lough of Co. Galway, Irish Free State. It is in the N.W. of the county, not far from Letterfrack, in the midst of magnificent scenery. There is Kylemore Castle, once a seat of the Duke of Manchester, a fine building decorated with Connemara marble.

Kyles of Bute Sea channel of Scotland. It is about 16 m. long, between the county of Argyll and the Island of Bute. It is famous for the scenery along its shores.

Kyneton Town of Victoria, Australia. A mining centre and pleasure resort on the river Campaspe, 53 m. from Melbourne. Pop. 3400.

Kyoto City of Japan. It is on the Island of Honshu, 27 m. from Osaka. Kyoto is an industrial centre with manufactures of fancy goods and artistic ware. It is also an important railway junction and is well supplied with electric power. Pop. 680,000.

Kyrie Eleison Greek invocation translated as *Lord have mercy upon us* and used in religious worship. In the mass it follows the Introit and is repeated thrice to each person of the Trinity. *Christe eleison* is the variant used for the second person. In the Church of England it is used at both morning and evening prayer.

Kyrie John. English philanthropist. Born at Dymock in Gloucestershire, May 22, 1637, he was educated at Balliol College, Oxford. He passed his life in Ross, Herefordshire, where he had some property and was known as The Man of Ross. He built churches and schools and was prominent in other beneficent work. Pope, who first called him The Man of Ross, and Coleridge praised him in poems. He died Nov. 7, 1724.

The Kyrie Society was founded to perpetuate his memory. It exists to benefit the poor and its offices are at 92 Victoria Street, London, S.W.

L AAGER In South Africa a protected camp. It is made by arranging the convoy wagons in a circle as was done by the Boers when they were trekking from one part of the country to another.

Laaland Island of the Baltic Sea. It is 447 sq. m. in extent and lies off the mainland of Holstein. The soil is fertile and much of it is covered with forests.

La Bassée Town of France. It is 16 m. from Lille, and is on the canal named after it. A small mining town, it was destroyed during the Great War, but has since been rebuilt. It has been adopted by Preston. Captured by the Germans on Oct. 23, 1914, it remained in their hands until Oct., 1918, when it was entered by the British.

Laboratory Place set apart for carrying out scientific experiments. It varies in character and equipment according to the nature of the science. In the teaching of physical sciences laboratories are essential; also for purposes of research, whether academic or economic. Many business organisations are equipped with laboratories for testing the quality and the standardisation of their products, and conducting economic research. **The National Physical Laboratory** at Teddington, where research and the testing and standardisation of materials are carried out, is an important government laboratory.

Labouchere Henry du Pré. English politician and journalist. Born in London, Nov. 19, 1831, he was educated at Eton and Trinity College, Cambridge, and entered the diplomatic service. In 1865 he was elected an M.P., but he soon lost his seat. In 1880, however, he was returned for Northampton and he remained in the House of Commons, one of its most prominent figures, until 1905. During those years he was persistent in his efforts to secure integrity in public life. In 1905 he was made a privy councillor, but he never held political office. His last years were passed in Florence where he died, Jan. 15, 1912.

In 1870 Labouchere, who had done a little writing for *The Daily News*, established *Truth*, and to him was due the distinctive feature of that weekly journal, its constant and fearless exposure of impostors and jobbery.

Labour In economics one of the factors in the production of wealth, the others being land and capital. It describes the work done on the raw material, except that which takes the form of management and direction.

The share of the joint product which should fall to labour in the shape of wages has been the subject of much discussion and many troubles. One idea is that labour is a commodity to be bought in the market at the lowest possible price, this being in practice the minimum cost of living. Another view is that labour has the first claim on the product of industry. Tariffs and other factors outside the industrial system also influence wages.

Labour Ministry of. Department of the British Government. It was set up in 1916 to deal with matters affecting labour, such as unemployment and arbitration, and is

under a minister, usually a member of the Cabinet, who is assisted by a parliamentary secretary and staff. The offices are at Montagu House, Whitehall, London, S.W.1.

Labour Day Name given to May 1. On that day the workers in most European cities hold labour demonstrations, usually peaceful, but sometimes accompanied by rioting. In the United States and Canada, and in some parts of Europe, Labour Day is a national holiday.

Labour Exchange Office established and controlled by the state for the registration of the unemployed, and the adjustment of the supply of labour to the demand. In Great Britain they were established in 1910, but in 1916 the name was changed to **Employment Exchange (g.v.)**.

Labour Party Political party in Great Britain and other countries. Existing to further the interests of the working classes, it arose during the 19th century and became powerful in the 20th. In Great Britain it was first represented in Parliament in 1900.

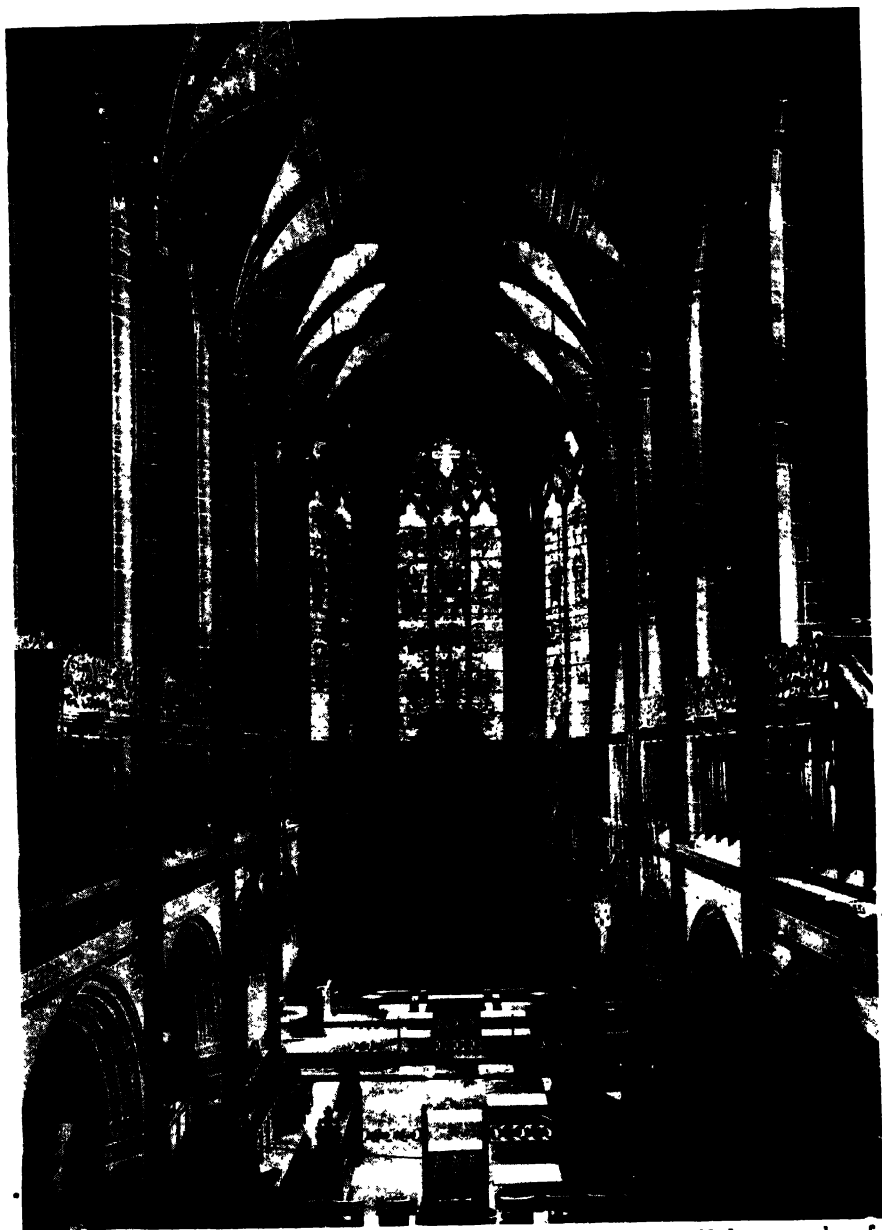
In 1923 the Labour Party became the official Opposition in the House of Commons, and in 1924 it formed a ministry. This had a short life, but a second Labour Ministry was in power from May, 1929, to August, 1931. There was then a split in the party, the majority under Mr. Arthur Henderson forming the Opposition, while a minority supported the National Government of Mr. J. Ramsay MacDonald.

The Labour Party holds an annual conference, and its headquarters are at Transport House, Smith Square, Westminster, S.W.1. Associated with it is the **Parliamentary Labour Party**, composed of all Labour members of Parliament, but the Independent Labour Party is quite distinct.

Labour Parties have obtained political power in other countries, especially Australia. There it has dominated the politics of the several states and has been in power for a considerable portion of the Commonwealth's existence, its leaders being Mr. W. M. Hughes, Mr. A. Fisher and Mr. J. H. Scullin. The Labour Parties in Canada and the United States have not yet secured political power.

Labrador District of North America. The most easterly part of the continent, it consists of a stretch of land along the Atlantic Ocean, from the Gulf of the St. Lawrence to Hudson Bay. The coastline, which is about 1000 m. long, is indented with many bays and fringed with many islands. The interior is mountainous, the climate cold and the soil unfertile. The population consists of about 4000, mostly Eskimos, and the only industry is fishing. There are, however, considerable natural resources in the shape of timber and minerals that are still unexploited.

The area of Labrador is about 500,000 sq. m., divided between Canada and Newfoundland. In 1927 the Privy Council settled a dispute about the boundary, and 110,000 sq. m. of the land was given to Newfoundland. This coastal strip is Labrador proper. In 1932 it was stated that Canada was willing to purchase Labrador from Newfoundland.



THE LADY CHAPEL, LIVERPOOL CATHEDRAL.—The beautiful example of English ecclesiastical architecture in Britain's newest cathedral.

[Stewart Bale, Liverpool]

Labradorite Variety of soda-felspar. It occurs in many igneous rocks, and, owing to its fine play of colours, is used for making cameos and decorative slabs.

La Bruyere Jean de. French essayist. Born in Paris, Aug. 16, 1645, he was educated at Orleans University. Called to the Bar in 1673, he became, on Bossuet's introduction, tutor to Condé's grandson. In 1688 he published his *Caractères*, sarcastic pictures of well-known contemporaries which more than once caused his defeat as candidate for the Academy. His style, like Racine's, is an excellent example of classical French. He died May 10, 1695.

Labuan Island of the East Indies. Situated off the north-west coast of Borneo, it has been British since 1846 and under the control of the Straits Settlement since 1907. Malays form the main element in the population. Agriculture is carried on and there is some export trade. Victoria (pop. 1500) is the capital and has a good harbour. Pop. (1929) 6029.

Laburnum Genus of hardy herbs of the leguminous order. They are natives of southern Europe. The common *L. vulgare*, introduced into England in the 16th century, bears pendulous sprays of yellow pea-like flowers. Purple laburnum is a hybrid of this with an allied species. Scotch laburnum has smooth pods. The wood of the laburnum is used to some extent by cabinet makers.

Labyrinth Name given to an intricate series of passages in a building or underground. The most famous labyrinth was that of Cnossos in Crete, built, according to the legend, by Daedalus. In Egypt, at Hawarah, there are the remains of another renowned labyrinth built by Amenemhat III., and mentioned by Herodotus.

Lac Purple dyestuff used for dyeing leather and silk. It is prepared from the bodies of *Coccus lacca*, an insect occurring on the twigs of *Ficus indica* and other trees in India, China and Japan. The insects secrete the resin known as stick lac, and the dye is obtained by soaking the lac with the insects in water.

Lac (or Lakh). Hindu word for 100,000, but used to describe any great number. A lac of rupees, 100,000, is worth between £8000 and £7000.

Laccadive Group of islands in the Indian Ocean. Situated some 200 m. from the Malabar coast, the group consists of 14 islands, 9 of which are inhabited. They are administered by the Madras Presidency. The people, who are mainly Mohammedans, carry on a trade in coconuts and coconut products. Pop. 13,633.

Laccolith Term used in geology. It is applied to an intrusive igneous rock which has been forced up in a molten state to spread between the overlying strata forming a lenticular mass. Owing to this intrusion the superficial strata have become elevated into a large anticlinal dome, examples of this structure being met with in Utah.

Lace Ornament of silk or cotton used on clothing and for other purposes. Lace is of two kinds, that made by hand and that made by machinery. Both are worked according to designs provided for the worker and some of these are very beautiful. Hand-made lace has been produced for centuries, and various kinds were called after European

cities which specialised in their manufacture. Thus we hear of Venetian, Mechlin and other laces. In England, lace-making flourished in Devonshire and Buckinghamshire, and some beautiful lace was also made in Ireland.

Point lace, in which the Venetians excelled, is not unlike embroidery, the lace pattern being worked upon a fabric foundation. Pillow lace is made by plaiting the threads around bobbins placed on a pillow or frame and arranged to form the required pattern.

In the 18th century lace was first made by machinery, and in the 19th this became a staple industry of Nottingham and its neighbourhood, as well as of Devonshire and parts of Scotland. Other centres were Calais and Plauen.

Machine lace is made on a machine invented by John Leavers, and the laces are named usually after the patterns of hand-made varieties, such as Brussels, Valenciennes, Torchon and Alençon.

In the 20th century the prosperity of this industry dwindled. For five years after the Great War the English manufacturers were protected by a safeguarding duty of 33½ per cent., but this was removed in 1930. Protection was again given, however, when a general tariff on imported manufactures was imposed in 1932. Bleaching is a subsidiary industry.

Lacedaemon In Greece, a name, used interchangeably with Laconia, for the district around Sparta (q.v.).

La Chaise François de. Noble priest, born at Aix, Aug. 25, 1624, and educated at Lyons. He became a member of the Society of Jesus and was appointed in 1674 confessor to Louis XIV., a position which he held until his death, Jan. 20, 1709.

His name is borne by a cemetery in Paris (Père La Chaise), one of the most famous in the world.

Lachine Town of Quebec. It is on Lake St. Louis, really part of the St. Lawrence, 8 m. from Montreal. Near are some rapids in the river, and the canal cut to avoid them is called the Lachine Canal. There are some manufactures. Lachine has stations on the C.P.R. and C.N.R. Pop. 15,400.

Lachish Ancient city of Palestine. It stood 16 m. from Gaza and was a place of importance in early times. The site has been excavated and valuable discoveries made. It is mentioned several times in the Bible, and in Joshua x. there is a reference to the King of Lachish.

Lachute Town of Quebec, Canada. It is 44 m. from Montreal and is served by the Canadian Pacific Rly. The industries include sawmilling. Pop. 2000.

Lacquer Name given to a resinous varnish which gives a highly polished surface when applied to wood or metal. Japanese lacquer is made from the resinous exudation from the lacquer tree, *Rhus vernicifera*, and is used for cabinets, trays, boxes, etc., giving a very hard and polished coating. Ordinary lacquers are made from shellac dissolved in spirit with the addition of other resins and colouring matter, and are applied to metal and hardened by stoving the articles.

Lacrosse Outdoor ball game. The name is really la crosse, the crosse being the stick used by the player. The game is played on a field about 100 to 150 yds. long. The stick is furnished at the end with a net, and the aim of the player is to catch the ball

in this and then to carry, or hurl, it forward. The ball is of rubber, weighing about 4½ oz.

A side consists of 12 players and the aim of each is to get the ball between the goal posts. The players are arranged much as in association football and only goalkeepers may handle the ball. In England to-day matches are played between Oxford and Cambridge; since 1887 they have been played between north and south, and since 1922 there has been a regular county championship. The game is very popular in Canada, whence it was introduced into England.

Lactation Secretion of milk, or the period of suckling an infant. In human beings normal milk appears within two or three days of the birth of the child, the average amount being 12 or 16 oz. daily. This lasts for about five weeks, after which the amount increases until the child is about eight months old. It then decreases gradually.

Lactic Acid Several organic acids, having the formula $\text{CH}_3\text{CHOH.COOH}$. The commonest, formed during the souring of milk by bacterial fermentation of milk-sugar, is a syrupy liquid, but can be obtained in crystalline form. It occurs also in fermenting vegetable matter and in meat juice.

Lactometer Name given to a type of instrument used in the determination of the quality of milk. There are several forms of lactometers. One is a variety of hydrometer for taking the specific gravity of milk, and another is a cylindrical graduated glass vessel which measures the volume of the separated cream.

Lactone Group of colourless liquid compounds soluble in water and alcohol and having usually a faint aromatic odour. They are regarded as intramolecular anhydrides of certain hydroxy acids, and are obtained by the elimination of water from certain hydroxy-carbonyl acids by the action of mineral acids upon the salts of these acids.

Lactose Scientific name for milk sugar occurring in milk. It is less soluble and not so sweet as cane sugar. It does not ferment with yeast, but undergoes fermentation with the common mould, *Penicillium glaucum*, forming lactic acid and causing the souring of milk. Lactose is a by-product of the milk industry in Switzerland, New Zealand and elsewhere.

Ladoga Lake of Russia. In the north of the country, it is on the borders of Finland and only a few miles from Leningrad. It covers 7000 sq. m., being the largest lake in Europe, and its length is 125 m. A canal to the Gulf of Finland, 50 m. away, has been planned.

Ladrones Group of islands in the Pacific Ocean. They are about 1500 m. from the Philippines and are governed by Japan, under mandate from the League of Nations, except Guam, which belongs to the United States. Saipan, Tinian and Rota are the largest of the islands, many of which are uninhabited. Coconuts, cotton, tobacco, rice and other tropical products are grown here. Their area is 430 sq. m. and the population 57,000, of whom 49,000 are natives and the rest Japanese.

Ladybird Large family of beetles (*Coccinellidae*). They have clubbed antennae and apparently three-jointed feet. Comprising about 2000 species, the most familiar British species are the red or yellow two-spot

and seven-spot. With bodies usually shining and hairless, they are economically valuable, because they and their larvae mostly consume scale insects and plant lice.

Ladybrand Town of the Orange Free State. It stands in the mountains of Basutoland, about 5000 ft. above sea level. It is connected by railway with Bloemfontein. Pop. 3300.

Lady Chapel Place for the altar of the Virgin Mary in large churches. It was often a separate building, but to-day is more usually part of the main structure. There are some very beautiful lady chapels in the English and French cathedrals and churches. A fine example is at Ely, but there are many others, as in the new cathedral at Liverpool.

Lady Day Name given to March 25. In the Christian calendar it is the day of the annunciation of the Virgin Mary. It is a quarter day in England and Ireland.

Lady's Mantle Flowering herb of the order *rosaceae*. It grows in the northern parts of Europe and Asia. The yellowish flowers grow in clusters.

Ladysmith Town of Natal, Africa. It stands near the Klip River, 190 m. from Durban, with which it is connected by railway. There is a racecourse, and a market is held here. Standing about 3000 ft. high, the town is visited by invalids. It owes its name to the wife of Sir Harry Smith, at one time Governor of Cape Colony. Pop. 6600.

In 1899 a British force, 12,000 strong under Sir G. White, was besieged here by the Boers. The siege lasted from Nov. 2, 1899 to Feb. 26, 1900, when the relieving force, under Sir Redvers Buller, entered the town.

Lady's Smock (*Cardamine pratensis*). Perennial plant of the cruciferous order. It is found in Great Britain in moist meadows and swampy places in the spring. Its flowers are of the palest lilac or pinkish purple shade, borne on stems 12 to 18 in. high. The upper leaves are pinnate with small narrow leaflets; the lower leaves broader and more rounded with a larger terminal leaf. Other names for it are cuckoo flower, and milkmaids.

Laertes In Greek legend, King of Ithaca and the father of Odysseus. He joined in the Caledonian boar hunt and in the expedition of Jason and the argonauts. He was still alive when Odysseus returned home after his wanderings.

Lafayette Marquis de. French statesman. Marie Joseph Paul Yves Roch du Motier was born Sept. 6, 1757, of noble family. In 1777 he went with some followers to help the colonists in America in their struggle with Britain and he served with them throughout the war. In 1789, being again in France, he was elected to the states general, and commanded an army when war broke out with Austria, but soon quarrelled with the dominant Jacobins and fled from the country. In 1799 he returned to France, and came into prominence after the restoration of the Bourbons. In 1824 Lafayette visited the United States, where he was received as a hero. He died May 20, 1834. Two American cities are named after Lafayette, as is also the Lafayette National Park (12 sq. m.) in Mount Desert Island, off Maine.

La Fère Town of France. It is 10 m. from St. Quentin, at the junction of the rivers Serre and Oise. The Germans took it in their advance of 1914 and kept it until Oct. 13, 1918.

La Fontaine Jean de. French writer. Born at Château-Thierry, July 8, 1621, he studied to become a priest, but instead took to the law. However, he never settled down to regular work, but lived an idle and dissolute life, chiefly in Paris. In 1661 he began to write and during the next few years published the volumes on which his fame rests. The most valuable are the *Fables* written in verse; almost equally famous are the *Contes*. La Fontaine, who was very friendly with Molière and Racine, died April 13, 1695.

Lagash City of Babylonia. It was founded by the Sumerians perhaps in 3000 B.C., or earlier, and was a flourishing centre of their culture. It had its own rulers, called patasis, who were subject to one or other of the kingdoms of that time, including Akkad and Ur. Soon after 2400 B.C. the city disappeared.

Lager Light beer. It is produced in Bavaria at low temperatures by decoction and bottom fermentation. It differs from infusion beers in containing more unfermented malt extract and carbonic acid and less alcohol. British beers resembling lager are produced by variant methods.

Lagerlöf Selma Otiliana Louisa. Swedish writer. Born Nov. 20, 1858, she was at first a teacher but soon began to write. In 1891 she made a reputation with some short stories, *Gosta Berlings Saga*. Novels followed and most of them have been translated into English. The English titles of the best are, *An Adventure in Vinland*, 1895; *Jerusalem*, 1901-02; *The Adventures of Nils*, 1906-07; *The Outcast*, 1920; *The General's Ring*, 1925; *Anna Svärta*, 1927. Her books owe their success to their vivid pictures of Swedish life. In 1909 she was given a Nobel prize, and in 1914 was elected to the Swedish Academy as its first woman member.

Laggan Loch, or lake, of Inverness-shire. It is 7 m. long, and the River Spean flows through it.

Lagoon Sheet of water. It may be an estuarine shallow enclosed by dunes of river silt heaped by winds and currents, as at Venice. Other lagoons are formed by springs, and others are sheets of water within a coral atoll.

Lagos City and seaport of Nigeria. It stands on a small island of the same name, just off the mainland, with which a bridge connects it. Lagos has a good harbour and a considerable trade passes through it. Here is a wireless station. Pop. 75,000.

The district and town of Lagos became British in 1862 and until 1914 there was a colony of Lagos. This now forms part of the protectorate of Nigeria.

In Lagos Bay on Aug. 18, 1759, four French warships were destroyed by a British fleet under Admiral Boscawen.

Lagrange Joseph Louis. French scientist. Born in Turin, Jan. 26, 1736, of French parents, he was educated there. He became professor in the University at Turin, and in 1786 director of Berlin Academy. His later years from 1787 were spent in Paris, where he was a professor. He died April 10, 1813. His investigations into the principles of acoustics, mechanics and dynamics, were of

the highest value. His chief work is the *Mécanique Analytique*.

La Harpe Jean François de. French writer. Born in Paris, Nov. 20, 1739, he began to write, and in 1763 produced a tragedy called *Warwick*. This was followed by others and then by books of criticism called *Lyce*, ou *Cours de Littérature*, in 12 volumes. He favoured the Revolution, but, having been imprisoned, turned to the Royalist side. He died Feb. 11, 1803.

La Hogue Cape of the Continent Peninsula, France. Here, on May 19, 1692, an English fleet, under Admiral Russell, aided by some Dutch ships, defeated the French, most of whose ships were destroyed by the pursuers, who sent fire ships amongst them. The victory saved England from invasion as France had an army of 20,000 men ready near Cape La Hogue. The battle is sometimes called after another cape on the peninsula, Barfleur.

Lahore City of India and the capital of the Punjab. It stands on the left bank of the River Ravi, 1250 m. from Calcutta and is a great railway centre. There is an old and a new part of the city. A university for the Punjab has been founded and there are several colleges. The mausoleum of Ranjit Singh and the Hall of Mirrors are reminders of the past. The city is still surrounded by its walls and a bridge crosses the river. The large railway works give much employment and there are some native manufactures, but the agricultural trade is more important. Pop. 280,800.

Laibach City and river of Yugoslavia. The town, which stands on the river, is 44 m. from Trieste and is the chief town of a large district. Pop. 47,000.

In 1821 a congress of European powers was held at Laibach. It was the last of the series that was started in 1814. There the powers authorised the Austrians to occupy Naples.

Laissez Faire French expression, meaning "Let alone."

It is used in political economy to summarise the individualist, as against the collectivist, doctrine of non-interference by governments in politics and trade, and supposedly originated in 1680, when Legendre remarked to Colbert, regarding government regulation of commerce, "Laissez faire, laissez passer."

Laity Term used for the whole body of laymen and lay women, i.e., all who are not clergy. In the Church of England one of the three houses of the national assembly is the House of Laity. The members are elected for five years by the diocesan conferences.

Lake Expanse of water occupying a depression in the land surface. Lakes from various causes are liable to fluctuate greatly in extent and tend gradually to disappear. They may form in rock basins or be caused by an obstruction such as ice or moraine accumulations in a river valley; or by the upheaval or subsidence of land, or old volcanic craters. The Caspian Sea and Lake Superior are the two largest lakes in the world.

Lake Name given to insoluble pigments used in dyeing. They are formed by the combination of an organic dyestuff with alumina or metallic salts. A number of lakes are used as watercolour paints, especially those from the madder plant (rose madder), and from cochineal (crimson lake), but are being replaced by more permanent alizarine pigments.

Lake District Area in the north of England. It covers

some 400 sq. m. in the counties of Cumberland, Westmorland and Lancashire, and is a picturesque district of mountains, lakes and valleys. The chief centres are Keswick, Ambleside, Grasmere and Bowness, and in the district are the three highest mountains of England, Scafell, Helvellyn and Skiddaw. The lakes include Windermere, Derwentwater, Ullswater, Conistone, Grasmere and others. The district is much visited by walkers and climbers and has several packs of foxhounds. It was first made popular by the poems of Wordsworth, Coleridge and Southey, the Lake poets.

Lake Dwelling Habitation supported on piles or fascines, usually found on shallow lake margins. Remains found in Central Europe, especially in Switzerland, from 1853 onwards, yielded many objects belonging to the stone, bronze and early iron ages; similar dwellings are still seen in Borneo and Papua. In neolithic times villages of 200 or 300 huts on pile-supported platforms were the centres of a civilisation that included fishing and some agriculture.

Lake of the Woods Lake of North America, partly in Canada and partly in the United States. It covers 1850 sq. m., and in it are many islands, hence its name. Kenora at the Canadian end is the chief port on the lake.

Lally Thomas Arthur. French soldier. Born Jan., 1702, he was the son of Sir Gerald O'Lally, an Irishman and a Jacobite. He entered the French army and took part in the expedition of 1745, but his chief exploits were in India. In 1756 he led a force to that country and for five years conducted the fight against the British in and around Madras. In the end he was defeated and made prisoner, when he surrendered Pondicherry. Allowed to return to France, he was tried for treachery, found guilty, and beheaded May 7, 1766.

His son, Trophime Gerard Lally-Tollendal, became known as a Royalist during the French Revolution. He was made a marquis by his friend, Louis XVIII.

Lamaism Religious system prevalent in Tibet, Mongolia and Sikkim. A form of Buddhism, it is administered by monks and nuns. The chief pontiff is the temporal Dalai or Grand Lama, inhabiting the Potala Palace at Lhasa; the Pen-Chen Lama, the spiritual head, inhabits the Tashilunpo monastery. The Dalai Lama is Buddhism's acknowledged head in China, but not in Japan.

Lamarck Jean Baptiste. French scientist. Born Aug. 1, 1744, he entered the army, in which he served during the Seven Years' War. An injury compelled him to seek another calling and he became a bank clerk. He spent much time in studying botany, and in 1773 published a book on the flora of France; through this he became a member of the Academy in 1778, and keeper of the herbarium in the royal garden in Paris. He lectured there on zoology for 25 years, and at the same time worked out the ideas on evolution which are expressed in his books, *Philosophie Zoologique* and *Histoire des Animaux sans Vertèbres*. In a sense he was a forerunner of Darwin, but he knew nothing of natural selection and the variation of types. He died in Paris, Dec. 18, 1829.

Lamartine Alphonse Marie Louis de. French writer and politician. Born at Mâcon, Oct. 21, 1790, he was educated at Lyons and then went to Italy. In 1820 he

published some poems called *Méditations*, and these with later volumes marked the revival in his country of romantic poetry. He also wrote a book on his travels in the East, and a narrative poem called *Jocelyn*. In 1833 he entered political life as a deputy, became Foreign Minister, and was for a time the most powerful man in the country. In a few months he resigned, and the rest of his days were passed in writing. His notable books include *La Chute d'un Ange*, *Confidences* and *Nouvelles Confidences*. As an historian he won fame with his *Histoire des Girondins*; he also wrote a history of the events of 1851-52. He died May 1, 1869. Lamartine married an Englishwoman, Marianne Birch.

Lamb Charles. English writer and wit. Born in London, Feb. 10, 1775, the son of John Lamb, he was educated at Christ's Hospital in Newgate Street, and in 1792 became a clerk in the service of the East India Co. There he remained until his retirement in 1825. He lived with his sister, Mary, in the Temple, and then in succession at Enfield, Islington, Edmonton and elsewhere. He died Dec. 27, 1834, and was buried at Edmonton.

Lamb is best known by his *Essays of Elia*, of their kind the most delightful and popular in the language, which first appeared in *The London Magazine*. With his sister he wrote *Tales from Shakespeare*, and he himself wrote *The Adventures of Ulysses* and other books for children, as well as a tragedy, *John Woodvil*, and a number of poems. Lamb had a great circle of friends, and many of his witty sayings have been preserved. Chief among his friends was S. T. Coleridge. His domestic life was clouded by the periodical madness of his sister, who in one of her attacks killed their mother. After this tragedy Charles took charge of her until his death. She lived until May 20, 1847.

Lambeth Borough of the county of London. It is on the south side of the Thames, having a considerable frontage on the river, and includes the districts of Brixton, Kennington, Vauxhall, Herne Hill,ulse Hill and part of Norwood. The industries include pottery and engineering works, but there are many others. A kind of pottery produced here in the 17th century is known as **Lambeth ware**. A new bridge over the Thames was opened by King George V. in July, 1932. The borough sends four members to Parliament. Pop. (1931) 296,162.

LAMBETH PALACE, which overlooks the river, has been for 700 years a residence of the archbishops of Canterbury. The building is full of interest. Features are the dining hall, the chapel and the rich library the gatehouse, called the Lollards' Tower. Part of the grounds, called Archbishop's Park is open to the public.

A decennial meeting of bishops of the Anglican Church is held at Lambeth, and is called the **Lambeth Conference**. The last was held in 1930.

Lambton Castle Seat of the Earl of Durham. It is 8 m. from Durham, overlooking the River Wear and was built in the 18th century on the site of an older house. It stands in a large park. In 1930 the house was closed, and in 1932 some of the literary and other treasures were sold.

Lamentations Book of. Book of the Old Testament. Ascribed to Jeremiah, it consists of five dirges, four of which are written acrostically, beginning with the successive letters of the Hebrew

alphabet; the fifth is non-acrostic. The laments, concerning Nebuchadnezzar's capture of Jerusalem and destruction of the temple, 586 B.C., are read in the synagogue annually on Aug. 6.

Lamesley Town of Durham. It stands on the Team, 4 m. from Gateshead, on the L.N.E. Rly. Coal mining is the principal industry.

Lamia In classical mythology, a Libyan queen whom Zeus loved. When Hera slew her children she destroyed every child she could secure. Greek mothers used her name as a bogey to frighten their children. She passed into Greek demonology as a vampire enticing youths to their destruction, as in Keats's poem, *Lamia*.

Lamination Term in geology. It is applied to the structure seen in sands, clays and shales where the component particles are laid down in thin layers ranging from an inch down to $\frac{1}{16}$ th of an inch in thickness. Lamination is due to successive depositions of fine mud or sand by rivers or tidal currents, usually in quiet waters.

Lammas Day Name given to August 1, a Scottish, and formerly also an English, quarter day. In mediaeval times it marked the end of the wheat harvest, and on it a loaf was offered as a thanksgiving by every harvester. It was thus the loaf mass or lammas. When the calendar was altered, lammas day was moved to Aug. 12. The lammas fields were the fields which on this day were thrown open for pasturage; previously they had been enclosed for the growing of corn.

Lammermuir Range of hills in Scotland. They run through Berwickshire and East Lothian (Haddingtonshire) to St. Abb's Head. Lammer Law (1733 ft.) is the highest point. The scene of Scott's novel, *The Bride of Lammermoor*, is laid here.

Lampblack Impure form of soot. It consists of amorphous carbon and hydrocarbons obtained by burning in special furnaces such substances as oil, resin and other organic material, the lampblack being collected from the hood or flues of the furnace. It is used in the manufacture of black paint and printers' ink.

Lampeter Borough and market town of Cardiganshire. It is on the Tivy, 27 m. from Carmarthen, on the G.W. Rly. Here is St. David's College, founded in 1827 for the training of candidates for the ministry of the church in Wales. Pop. (1931) 1742.

Lampoon Name used for a satire, or attack of a somewhat vulgar character, on an individual. It may be either in verse or prose. At one time politicians were very subject to lampoons.

Lamprey Family of aquatic vertebrates of an order lower than fishes. Scaleless and jawless, they cling to rocks or fishes by their mouths. British sea lampreys, river lampreys, or lamperns, and mud lampreys, or prides, all ascend rivers for spawning, and are captured mainly for bait for seafish. They are found in all temperate waters.

Lanark Burgh, market and county town of Lanarkshire. It stands on the Clyde, 31 m. from Glasgow, on the L.M.S. line. Cotton and other textiles are manufactured, and there is an agricultural trade. Every June a town festival is held on Lanark Moor, and there are race meetings twice a year. The

scenery in the neighbourhood is very beautiful. Pop. (1931) 6178.

Near is New Lanark, where Robert Owen erected cotton mills and worked them as an experiment in socialism.

Lanarkshire County of Scotland. It is in the south-west of the country and, as the Clyde flows through it, is sometimes called Clydesdale. It covers 879 sq. m., and is chiefly noted for its rich coal mines which have made it a great industrial area. More than one-third of the population of Scotland lives in Lanarkshire, which includes most of Glasgow, as well as Lanark, Rutherglen, Motherwell, Hamilton and Airdrie. Away from the mines there is much fertile land, where market gardening and the rearing of horses, cattle and sheep are carried on. Clydesdale horses are famous. The chief rivers are the Cart, Kelvin and other tributaries of the Clyde, and in the south are the Lowther Hills. The county is full of scenes and buildings of historic interest. Pop. (1931) 1,585,968.

Lancashire County of England. In the north-west of the country, it has a long coastline on the Irish Sea. Elsewhere its boundaries are Yorkshire and Cheshire. In the north is a portion of the county separated from the rest by Morecambe Bay and known as Furness. The county is entered by the Pennines. The rivers include the Mersey, Irwell, Ribbles, Lune, Calder and Darwen. Coniston is the largest lake.

Much of Lancashire is a thickly populated area, and is a centre of the coal-mining and cotton industries. Liverpool and Manchester are the chief industrial towns, and the principal seaports, Manchester being linked with the sea by a ship canal. Other large towns are Salford, Blackburn, Bolton, Oldham and Preston. Lancaster is the county town; Barrow-in-Furness is a large seaport. Blackpool and Southport are popular watering places. Lancashire is a famous cricketing county and has innumerable cricket and football clubs. Pop. (1931) 1,794,857.

The Lancashire Fusiliers, a regiment of the British army, was raised in 1688 and was formerly known as the 20th Foot. It has a long and honourable record of active service, and had many battalions in the field during the Great War. The depot is at Bury.

Lancaster Borough, market town and river port of Lancashire; also the county town. It is on the Lune, 7 m. from the sea and 230 m. from London, on the L.M.S. Rly. Much of the old castle is now used as law courts and contains a museum. The chief industries are the making of linoleum and engineering works, while there is a little shipping in the river. Pop. (1931) 43,396.

The Royal Lancaster Regiment, which has its depot at Lancaster, is nowadays known as the King's Own.

Lancaster Duchy of. Name of the estates that belong to the King as Duke of Lancaster. They are chiefly in the counties of Staffordshire and Lancashire and are managed by a council, the head of which is the chancellor of the duchy, a member of the Government. In 1929 the income of the duchy was £127,000, and £62,000 was paid to the King. The duchy has an attorney-general, and courts are held in the name of the Duke, who appoints the high sheriff of the county.

Lancaster Duke of. Title borne by the king of Great Britain.

Henry III.'s younger son, Edmund, was made Earl of Lancaster in 1267, and this title passed to his great-grandson, Henry, who was made a duke in 1351.

Duke Henry was a famous soldier until his death on May 13, 1356. He left no sons, only a daughter who married, in 1359, John of Gaunt, a son of Edward III. In this way Gaunt obtained the rich estates of the duchy and the title of Duke of Lancaster, which passed on his death to his son, who became Henry IV. The duchy then became associated with the crown and since that time (1399) the king, or queen, has been Duke or Duchess of Lancaster.

Lancaster Duke of English prince. John of Gaunt, so named because he was born at Ghent, was the fourth son of Edward III. Born June 24, 1340, in 1359 he married Blanche, the heiress of Henry, Duke of Lancaster, and so obtained that title. She died in 1369 and he married Constance, daughter of Peter, King of Castile. John spent much of his time fighting in France and Spain, and at one time hoped to become King of Castile. When his father's health was feeble he became active in English politics, and he remained so during the reign of his nephew, Richard II. At this time he was the leader of the party that favoured the teaching of Wycliffe and opposed the church. He died Feb. 3, 1399, leaving a son who became Henry IV., and a daughter, Catherine. His third wife was Catherine Swynford. By her he was the father of the Beauforts, who played an important part in public affairs during the reigns of Henry IV. and Henry V.

Lancaster House of family that produced kings of England from 1399 to 1461. Its founder was Edmund, a son of Henry III., who was made Earl of Lancaster in 1267. In 1351 Henry, a later earl, was made a duke, and from him the title passed to Edward III.'s son John of Gaunt, who married the duke's daughter. Their son Henry claimed the throne as being descended from Edward I., and in 1399 landed in England from his exile and was crowned Henry IV., Richard II. being deposed. He, his son Henry V. and his grandson Henry VI. were kings in turn. Richard, Duke of York, claimed the crown in opposition to Henry VI., and the Wars of the Roses began. The result was the deposition of Henry VI. in 1461 and his murder in 1471. His son had already been killed and the house of Lancaster became extinct in the male line.

Lancaster Joseph. English reformer. Born in 1778, he opened a school in Borough Road, London, in 1801. He introduced into this the monitorial system, and the experiment was so successful that in 1808 the Royal Lancasterian Society was founded to develop his ideas. This became the British and Foreign School Society. Lancaster went to the United States in 1818, and was in New York when he died, Oct. 24, 1838. He is regarded as one of the pioneers of popular education in England.

Lancaster House. Mansion containing the London Museum. It is near St. James's Palace and overlooks the Green Park. Formerly York House, it was built about 1826 for the Duke of York, and was bought successively by the Duke of Sutherland (1841) and Lord Leverhulme (1912). The latter renamed it Lancaster House, and presented it to the nation to contain the London Museum.

Lance Slender cavalry spear. It was used by the knights in the Middle Ages. Its use was revived during the Napoleonic wars and in the 19th century it was adopted for regiments in the British, Prussian and other armies. It is now only a ceremonial weapon. The lance is from 8 to 9 ft. long, made of steel with a short, triangular spear head. Sometimes it is of ash or bamboo with a steel head.

Lance Corporal Non-commissioned officer in the British army. It is the lowest rank in the service. The lance-corporal wears a single chevron on each sleeve.

Lancelet Small vertebrate creature. It is found near the coast of most warm countries and is about 2 ins. long. It is like a fish in shape, but is a much simpler organism, being merely a piece of jelly with a backbone. It belongs to the class *Cephalochoria*, and is interesting because, being the lowest of the vertebrates, it is regarded as the link between these and the invertebrates. Its other name is amphioxus.

Lancelot Character in the Arthurian legends. He appears as the handsome knight who won the love of Arthur's queen, Guinevere, and so broke up the company of the Round Table. He was known as Sir Lancelot of the Lake, and tradition makes him the father of Galahad. He is said to have become a monk after his great battle with Arthur. His story is in Malory's *Morte D'Arthur* and in Tennyson's *Idylls of the King*.

Lancers Cavalry regiment in the British army. They are so called because their principal weapon was the lance. At one time there were six of them, 5th, 9th, 12th, 16th, 17th and 20th. The oldest, the 5th and 9th Lancers, were raised in 1697, and the others in the 18th century. After the Great War the number of lancer regiments was reduced to four and in 1929 one of these, the 12th, was made into an armoured car regiment. The other three are the 9th, the 16th/5th, a union of those two, and the 17th/21st, another union. All have fine records of service, especially the 17th, which wears as its badge a Death's Head and is called the Death or Glory Boys.

Lancers Square dance. It is of French origin and was very popular in the 19th century. It consists of five figures, and eight people compose the set.

Lancewood Tough elastic timber of various trees of the custard apple order. It grows in British Guiana and the West Indies. Assegal wood, allied to dogwood, is sometimes called Cape Lancewood.

Lanchester Town of Durham. It is 8 m. from Durham, on the L.N.E. Rly. The chief occupation is coal mining. The town occupies the site of a Roman city and many Roman remains have been unearthed. Pop. 5200.

Lancing Village of Sussex. It is 8 m. from Brighton, and has of late become a seaside resort. On the Downs above the village is Lancing College, properly S. Nicholas College, Lancing, a public school with accommodation for about 400 boys.

Land Word used for the earth on which we live and which provides us with the fundamental needs of human life. In most countries of the world a great deal of it is owned by private individuals, but there are public lands, or land which belongs to the

state as a whole. Much of the land in private hands is let out for rent.

The private ownership of land has created many difficulties, and sometimes perhaps injustices, and as a remedy its nationalisation has been suggested. The special taxation of land, which it is argued differs from other commodities in that its amount is strictly limited, has been advocated, and in one or two cases has been put into practice. In Ireland, where the land problem is particularly acute, much of the land has been bought by the tenants from the landlords with the aid of the state.

In Great Britain economic causes in the 20th century have led to the sale and break up of many large landed estates. All over the civilised world the tendency is for the ownership of land to pass from the large holder to the small one.

In Great Britain land is conveyed from one person to another by lawyers who draw up conveyances, which, with other documents, constitute the title deeds. This applies to the two kinds of land found in the country, freehold and leasehold. The laws dealing with land are very cumbersome, but a series of laws passed in 1925 helped to simplify them.

To facilitate the transfer of land, a system of registration has been devised. This has been adopted in Canada, Australia and other parts of the British Empire and to some extent in England. An office for the registration of titles to land was opened in London. In 1898 the registration of land sold was made compulsory in the county of London and in 1925 in the borough of Eastbourne; it is also compulsory in Yorkshire and Middlesex; elsewhere it is optional. The owner of land on the register for a certain time obtains an absolute title to it which is guaranteed by the state, and future transfers can be carried out at small cost.

Land In economics one of the factors in production, the others being capital and labour. It is known as the joint product which it receives is shared as rent. According to Ricardo's theory of rent, the amount of rent is decided by the value of a piece of land over land on the margin of cultivation, i.e., land which just pays for the expenses of cultivation and no more.

This idea of rent is quite sound in theory, but in practice it needs modification. Local customs play their part in determining the value of land. Moreover, land, especially agricultural land, has had a certain amount of capital put into it and must offer a return in the shape of profits.

The enormous increase in land values in towns has led to a demand for special taxation on these, but so far only temporary expedients have been attempted in this direction.

Land Army Organisation set up in Great Britain in 1917. It was composed of women who were enrolled, wore a uniform and received a regular weekly wage. Each entrant received training and an outfit. Their duties were to assist farmers, and at one time they numbered about 20,000. The organisation, which had a journal, *The Landswoman*, was dissolved after the war.

Landau Town of Bavaria. It stands near the Hardt Mountains, 30 m. from Mannheim, on the little River Queich. At one time it was a free city and was fortified. In 1648 it was given to France and in 1816 to Bavaria. The town is a centre of the wine trade. Pop. 17,000.

Landau gave its name to a kind of carriage, once popular in England. This could be open or closed and was usually drawn by one horse.

Land Court Body that decides matters concerning the tenure and rent of land. In 1811 one was set up in Scotland. This fixes fair rents, especially in the areas occupied by crofters, and decides the price of land that is taken for small holdings.

Land Crab Widespread family of tropical crustaceans. Their modified gill cavities, acting as lungs, enable them to live on land. They spend the day in burrows, sometimes two or three miles inland, migrating to the coast collectively in the breeding season. The Jamaica violet land crab is a table delicacy, especially when soft-shelled during moulting.

Landes District of France. It is in the south-west of the country, and is a noted expanse of sand and marsh covering 3015 sq. m. in the departments of Landes, Lot-et-Garonne and Gironde. On it furze grows freely and sheep are pastured. At one time the people of the Landes went about on skis, so difficult was it to traverse the sand and marsh, but now there are roads that to a large extent have made this mode of progress unnecessary. The department of Landes lies along the Bay of Biscay.

Landgrave German title meaning "count of the land." There were several such in the Middle Ages and later, one being the ruler of Thuringia. In Hesse there were landgraves until 1918.

Land League Society set up in Ireland in 1879. Its object was to reform the land system of that country. Its inspirer was Michael Davitt, and its president, C. S. Parnell. The methods adopted, including refusal to pay rent, boycotting and even outrages, brought its supporters into conflict with the law, and in 1881 the league was declared an illegal association. After this time less was heard of its operations, and as the landlords were gradually bought out there was less need for it.

Landlord Primarily one who owns land. It is also used for the owner of houses and for the licensee of an inn. Many landlords let their land and houses to others who are known as tenants and who pay rent.

In Great Britain, as in other countries, a number of laws deal with the relations between landlord and tenant. The several Rent Restriction Acts and an important act passed in 1927 regulate the position as regards property which is not agricultural. One result was to give retiring tenants of business premises the right of compensation for improvements. As regards agricultural land also, the retiring tenant is entitled to compensation for improvements made by him. See LAND; RENT.

Landor Walter Savage. English writer. Born at Warwick, Jan. 30, 1775, the son of a doctor, he was educated at Rugby and Trinity College, Oxford. For a time he lived in Wales and wrote poems. Later he raised and led a force to help Spain in the Peninsular War. On his return from this expedition, he lived again in Wales, then in Florence, and then, for 20 years (1838-58), in Bath. In 1858 he went back to Florence where he died, Sept. 17, 1864.

Landor was a fine scholar and a man of considerable gifts. He had many friends,

but his quarrelsome nature made an equal number of enemies. Of his writings the most popular are, *Imaginary Conversations*, 5 vols., *The Examination of W. Shakespeare* and *Pericles and Aspinia*. He also wrote a tragedy, *Count Julian*, and many poems. Landor had a great love for republicanism, admiring Washington and Garibaldi.

Landrail Alternative name for the cornrake (q.v.) used to distinguish it from a water rail. It also denotes generally any rail frequenting uplands, e.g., the New Zealand weka rail.

Landrecies Town of France. It stands on the Sambre, on the borders of Belgium, 50 m. from Lille, and was long a fortified town. Near is the forest of Mormal. On Aug. 25, 1914, when the British were retreating from Mons, sharp fighting with the Germans took place here. The Germans were driven out, but soon regained the town and held it until the end of the war.

Landscape Term in art applied to a picture representing a view of a country as seen by the artist. Among the greatest of landscape painters are Ruysdael and Hobbema of the Dutch school, Claude, Corot and Rousseau of the French school, and the English artists, Constable, Bonington and Turner.

Landscape gardening means laying out a garden with regard to its general appearance, not to the details of beds and borders. It thus needs a considerable area and is best seen in the gardens of the great English houses such as Alnwick and Bowood. Natural features can be used with great effect.

Landseer Sir Edwin Henry. English artist. Born in London, March 7, 1802, he studied art under his father, an engraver, and at the Royal Academy Schools, London. In 1826 he was made A.R.A. and in 1830 R.A. He was knighted in 1850. He died in London, Oct. 1, 1873. Landseer became very popular as an animal painter. His works are represented in the Tate and National Galleries, London. In the form of engravings his pictures became very well known, e.g., "The Monarch of the Glen" and "Dignity and Impudence." He designed the lions in Trafalgar Square, London.

Land's End Extreme western point of England. It is in Cornwall, 9 m. from Penzance, and is visited by pleasure seekers. The granite cliffs rise to a height of 100 ft. Near are the Longships, a group of islets on one of which is a lighthouse.

Landslip Subsidence of strata on the coast where hard beds rest upon soft impermeable ones. The action of springs and waves wear away the softer rocks rendering the overlying beds unstable and liable to break and slide down on to the shore. Examples are seen at Axmouth, Devon and Antrim, Ireland.

Land Tax Form of taxation. Taxes on land have been levied in many countries and have taken many forms. The feudal system included what was usually a tax on land, and tithes are a tax on land. In Great Britain in 1692 a tax was levied on land at the rate of 4s. in the £. Later owners were allowed to commute the tax and many did so. To-day it is only paid for a small proportion of the land of the country and produces less than £1,000,000 a year. It is levied on the parishes and the amount divided up among the landowners.

In modern times there has been a demand for taxes on land that has improved in value owing to the growth of population and other causes. In Australia a tax of this kind was levied and there was one in Great Britain between 1910-1920, this being called the increment value duty. In 1929 a new land tax was introduced. This took the form of a tax on the capital value of land at the rate of a penny in every £1. Agricultural land and also plots of land worth £120 and less were exempt. A valuation of all the land in the country was begun, but this was suspended in 1931. and the proposed tax was abandoned.

Lane Lupino. English actor and acrobat. He was born June 16, 1892, and made his first London appearance as "Nipper Lane" in 1903. He is a member of the famous Lupino family noted for its acrobatic skill since 1780 and is himself an expert acrobat.

Lanercost Village of Cumberland. It stands on the Irthing, 11 m. from Carlisle. It is famous for the ruins of its 12th century priory, which has some old and interesting tombs.

Lanfranc English prelate. Born at Pavia about 1005, he became a priest and settled in Normandy. In 1041 he became a Benedictine monk at Bec, and in 1045 he was made head of that house. Through the influence of William, Duke of Normandy, he was made head of a monastery at Caen in 1062, and Archbishop of Canterbury in 1070. He died May 24, 1089, and was buried in Canterbury Cathedral, which he himself had rebuilt after the fire of 1067.

Lanfranc was a scholar and wrote some treatises and commentaries. He was also one of William's most trusted advisers.

Lang Alexander Matheson. British actor. Born in Montreal, May, 15, 1879, the son of a Scottish minister, he was educated at Inverness and St. Andrews, and in 1897 first appeared on the stage. Under F. R. Benson he played Shakespearean characters with much success and he soon became prominent. He took a company to Australia and S. Africa and as a producer was responsible for, *Mr. Wu*, *Othello*, *Carnival* and *The Wandering Jew*, in all of which he himself appeared. His other successes included *Charles Surface* in *The School for Scandal*; *John Storm* in *The Christian*; and he also played in *Jew Süss* and *Elizabeth of England*. Lang has also taken part in productions for the films.

Lang Andrew. Scottish writer. Born at Seikirk, March 31, 1844, he was educated at Edinburgh Academy, St. Andrews and Oxford. He was made a fellow of Merton College, Oxford, and became a writer for the press. He wrote regularly for *The Daily News* and for other journals, partly on politics but more frequently on books, his work being marked by wide knowledge, graceful style and real, though unobtrusive, scholarship. Working to the end, he died July 20, 1912.

Lang's books are very numerous and on a variety of subjects. Some are volumes of poetry, such as *Grass of Parnassus*; others are translations, the most notable being those of the *Iliad* and the *Odyssey*, in which he collaborated. He also wrote a *History of Scotland*, and biased but scholarly books on Mary, Queen of Scots and Joan of Arc, also on the Young Pretender and the rising of 1745. *A Monk of Fife* is a novel and with Rider Haggard he wrote *The World's Desire*. On anthropology and folklore he was something of

an authority, his books including, *Custom and Myth and Magic and Religion*. His volumes of essays on literature such as *Letters to Dead Authors* and *Books and Bookmen*, are perhaps his most enduring work.

Lang Cosmo Gordon. British prelate. A son of Rev. J. Marshall Lang, principal of the University of Aberdeen, he was born Dec. 31, 1864, and educated at Glasgow and Balliol College, Oxford. He became a fellow of Magdalen College, entered the Church and from 1890-93 was vicar of S. Mary the Virgin at Oxford, and from 1896 to 1901 vicar of Portsea. Afterwards he became successively Bishop of Stepney, Canon of S. Paul's and (in 1909) Archbishop of York. In 1928 he was appointed Archbishop of Canterbury in succession to Dr. Davidson.

Lang John Thomas. Australian politician. Born in Sydney, Dec. 21, 1876, he became mayor of Auburn and a prominent figure in the Labour movement. In 1913 he entered the legislative assembly of New South Wales where he became leader of the Labour party. From 1920-22 he was Treasurer and from 1925-27 he also held the office of Prime Minister. In 1930 Lang again became Prime Minister, and he was prominent during the financial crisis of 1931, when he advocated the policy of repudiation, and in March refused to find money for the interest due in London on New South Wales loans. During 1931 and 1932 he carried on a struggle against the government of the Commonwealth that passed legislation to compel New South Wales to meet its liabilities, but in 1932 the general election went against him, and he left office.

Langdale Two valleys in the Lake District. Great Langdale is near Grasmere and is 5 m. long. At Elterwater it meets Little Langdale, a somewhat shorter valley. Two pikes at the top of Great Langdale are known as the Langdales, they are Harrison Stickle (2400 ft.) and Pike o' Stickle (2330 ft.). A village in Great Langdale is called Langdale. It is 4 m. from Ambleside.

Langholm Burgh of Dumfriesshire. It is on the Esk, 21 m. from Carlisle, on the L.N.E. Ry. Old Langholm is on one side of the river and New Langholm on the other. The burgh is noted for its sheep fairs and tweed is manufactured. Near is Langholm Lodge, a seat of the Duke of Buccleuch. Pop. (1934) 2448.

Langland William. English poet. He was born at Clebury Mortimer about 1330 and became a priest. He passed most of his life in London without a regular charge and died in 1400 or thereabouts.

Langland is famous as the author of *The Vision of Piers Plowman*, a picture of the life of the time in England which is invaluable. The scene is the Malvern Hills, near his home.

Langside District of Glasgow. It is famous because here on May 13, 1568, the forces of Mary, Queen of Scots were beaten by those under the Regent Moray. Mary escaped to England. Langside is now in the city of Glasgow.

Langton Stephen. English prelate. Born about 1150, he studied in Paris and became a priest. In 1206 he was made a cardinal and in 1207 was appointed Archbishop of Canterbury, but owing to the opposition of King John, he did not obtain the post until 1213, spending his time in France. Langton is best known as one of the leaders of the barons

who compelled John to sign Magna Charta, and as a defender of the church and the rights of the English nation. He died July 9, 1228, and was buried at Canterbury. The theological *Commentaries* he wrote were valued by scholars in the Middle Ages.

Langtry Lily. English actress. Born in Jersey, Oct. 13, 1853, she was the daughter of a clergyman there, Rev. W. C. Le Breton. In 1874 she married Edward Langtry, and in 1881 she appeared on the London stage where her beauty and ability soon made her the most popular actress of the day. She remained for many years a great favourite, her successes including parts in *She Swoops to Conquer*, *Macbeth*, and *As You Like It*. She played also in South Africa and the United States and for a time managed a London theatre. She also owned racehorses. Her second husband was Sir Hugo de Batho. She died Feb. 12, 1929.

Language Any expression of thought, specifically the verbal utterance developed by mankind from inarticulate gesture into articulate speech for recording and communicating ideas. Language is not heritable, but acquired by each individual after birth. It may comprise isolated, agglutinative and inflected, or analytic and synthetic forms. Developed in various primary areas, these passed into local dialects by migration and settlement, being classifiable into major groups such as Indo-European, Semitic, Hamitic, Altaic, Austric, Bantu, Amerind and the like. Dialectic branches are especially abundant in isolated regions, e.g., mountain valleys and islands. Sign language and drum language are conventional modes of communication independent of the tongue.

Languedoc One of the provinces of France before 1789. It was in the south-east of the country, lying to the north of the Pyrenees and the west of the Rhône. Its chief town was Toulouse. The Albigenes and then the Camisards lived in the district. The word means the *langue*, or language, *d'oc*, because the inhabitants pronounced the French word for yes as *oc*.

Lankester Sir Edwin Ray. English scientist. Born May 15, 1847, the son of a medical man, he was educated at S. Paul's School, London, and Downing College, Cambridge. He began to lecture at Exeter College, Oxford, and from 1874-90 was Professor of Zoology at University College, London. From 1891 to 1898 he was Linacre Professor of Comparative Anatomy at Oxford, and from 1898 to 1907 director of the Natural History Museum at South Kensington. One of the leading zoologists of his time, Lankester wrote text books, and after his retirement devoted his talent to popularising the sciences of which he was a master. His volumes include, *The Kingdom of Man*, *Diversions of a Naturalist*, *Secrets of the Earth and Sea and Science from an Easy Chair*. In 1906 he was president of the British Association and he helped to found the Marine Biological Association. Knighted in 1907, he died Aug. 15, 1929.

Lannes Jean. French soldier. Born April 11, 1769, the son of a livery stable keeper, he entered the army in 1792. Soon he attracted the notice of Napoleon, and was made a general. In Italy he added to his reputation at Marengo, and he held high commands at Austerlitz, Jena and Friedland. He also served in Spain and Portugal, and was made Duke of Montebello and a

marshal. At the battle of Aspern he was seriously wounded, and died May 31, 1809.

Lanolin Name given to hydrous wool fat. It is a yellowish white tenacious substance derived from the skin of the sheep. It contains cholesterol and the esters of certain fatty acids, is absorbed readily by the skin, and is the basis of many ointments for rapid absorption of drugs.

Lanrezac Charles Louis. French soldier. He was born in Guadeloupe, July 31, 1851, and entered the army. He passed through the school of war and made a reputation as a student of strategy. He rose to the rank of general, and in 1914, when war broke out, he was a member of the Council of War and head of the 6th army. He led his army at the battle of Charleroi, but he did not agree with the French plan of campaign, and his relations with Joffre were bad. On Sept. 3 his command was taken from him. He died Jan. 18, 1925.

Lansbury George. English politician. Born Feb. 21, 1859, he emigrated when young to Australia. Having returned to England in 1885, he became known as a socialist politician. In 1903 he was elected to the borough council of Poplar which he also represented on the London County Council. From 1910-12 he was Labour M.P. for Bow and Bromley and he was again elected in 1922 and at subsequent elections. From 1929-31 he was First Commissioner of Works and in 1931, when nearly all the Labour leaders had lost their seats in Parliament, he was selected to lead the opposition.

Lansdown Hill outside Bath. On it is a tower built by William Beckford and called Beckford's Tower. On July 5, 1643, it was the scene of a fight between the Royalists and the Parliamentarians, in which the former were driven back with heavy loss. On the hill is a monument to Sir Bevil Grenville, who was killed.

Lansdowne Marquess of. English title borne by the family of Fitzmaurice. The early Fitzmaurices were barons of Kerry in the Irish peerage, and in 1722 one of them was made Earl of Kerry. A younger son of the 1st Earl was made Earl of Shelburne in 1753, and the 2nd Earl of Shelburne was made Marquess of Lansdowne in 1784. The family estates are in Wiltshire, where is the family seat of Bowood. The marquess has also estates in Ireland. His eldest son is known as the Earl of Kerry.

William Petty Fitzmaurice, the 1st marquess is better known as the Earl of Shelburne (q.v.). In 1809 Henry Petty Fitzmaurice became the 3rd marquess. He had already been Chancellor of the Exchequer (1806-07), and for the rest of his life he was one of the leaders of the Whig party, holding high office under successive Whig governments. In 1852 and 1855 he refused to become premier and later he refused a dukedom. He died Jan. 31, 1863, when his son became the 4th marquess.

Lansdowne Marquess of. English statesman. Henry Charles Keith Fitzmaurice was born Jan. 14, 1845, and was educated at Eton and Balliol College, Oxford. In 1866 on the death of his father, the 4th marquess, he succeeded to the titles and estates and entered upon his long career of public service. He held a junior office in the Liberal ministry of 1868-74 and again for a short time in 1880. In 1883 he was appointed Governor-General of Canada

and from 1888-93 he was Governor-General of India. In 1895, as a Liberal Unionist, Lord Lansdowne was made Secretary for War, a post he retained until he became Foreign Secretary in 1900.

Resigning office in 1905 he became leader of the Unionist party in the House of Lords. He was concerned in the negotiations of 1914 on the Irish question, and in 1917 advocated a peace with Germany. He died June 3, 1927. His life was written by Lord Newton, 1939.

Lord Lansdowne married a daughter of the Duke of Buccleuch. His younger son, Lord Charles Mervyn Nairne, was killed in the Great War; the elder son having, as Earl of Kerry, sat in the House of Commons, became the 6th marquess on his father's death.

Lansdowne House. London residence. It is in Berkeley Square, and was built in the 18th century by the brothers Adam. Additions were made to it later. Long the London house of the Marquess of Lansdowne, it was sold in 1929.

Lansing Robert. American politician. Born at Watertown, New York, Oct. 17, 1864, he was educated at Amherst College. He became a lawyer, was employed on several important international cases and was closely associated with the government. In June, 1915, he succeeded W. J. Bryan as Secretary of State and he held that position throughout the war period, when his knowledge of international law was extremely useful. He attended the Peace Conference in Paris, but in Feb., 1920, resigned, and returned to his legal practice at Watertown. Lansing wrote *The Peace Negotiations* and *The Big Four of the Peace Conference*.

Laocoon Group of statuary. It was discovered in Rome in 1506, and is now preserved in the Vatican Museum. It represents the final episode in the Greek legend of the Trojan priest, Laocoon, where two serpents strangle him and his two sons. The raised arms and some parts of the serpents have been restored.

Laodamia Character in Greek legend. The wife of Proteus, who was killed during the siege of Troy, she implored the gods to allow him to return to her from Hades for three hours. On his return to Hades she died and so went with him.

Laodicea Name of several cities founded or renamed by Seleucid kings. The chief, situated on the River Lycus near Colossae, was renamed by Antiochus II. (3rd cent. B.C.) after his wife Laodice. Its early Christian community was addressed by Paul in his epistle to the Colossians and reproved for lukewarmness in Revelation (Ch. iii.).

Laomedon In Greek legend the King of Troy. For an offence Zeus ordered Apollo and Poseidon to serve Laomedon. In return the king promised them rewards, but when the time came he refused to honour his undertaking. Poseidon therefore sent a sea monster to ravage his lands, and to save them he was decided to sacrifice the king's daughter, Hesione, to the beast. Hercules saved the princess, but again Laomedon refused the promised reward. For this he and his sons, save one, were killed. The survivor, Priam, became King of Troy.

Laon City of France. It is 87 m. from Paris, and has a magnificent cathedral and an old palais de justice. Owing to its position it was an important fortress in

the Middle Ages and a residence of the Carolingian kings. There was much fighting in the neighbourhood in 1814 and 1815, and again during the Great War. The town was entered in Aug. 30, 1914, by the Germans who remained in possession until Oct., 1918. Pop. 16,300.

Lão-Tsze Chinese philosopher. He lived in the 6th century B.C., and was the author of a work called *Tao-teh-king*, one of the sacred books of the Chinese. He teaches the religion called Taoism, a kind of pantheism: "All things originate from Tao, conform to Tao, and to Tao they at last return," Tao being the supreme being. He taught also a belief in the transmigration of souls. He was librarian to one of the ruling princes and finished his life in a hermitage.

La Paz Capital of Bolivia. It stands high up in the mountains in the centre of the country, 30 m. from Lake Titicaca. Railway lines connect it with the coast at Mollendo and with other places. La Paz is a prosperous trading centre, with a university and some fine buildings. Pop. 142,000.

Another La Paz is a small port of Argentina, on the Parana river. A third La Paz is in Mexico. This is a seaport.

Lapis Lazuli Beautiful blue mineral. It consists of silicate of soda, lime and alumina with sulphur and chlorine. It has been valued as an ornamental stone from ancient times, being known to Pliny as *sapphirus*. It is used still in mosaic work, and was the original source of the pigment ultramarine.

Laplace Marquis de. French scientist. Pierre Simon Laplace was born March 28, 1749, and showed exceptional gifts as a mathematician. In 1787 he became a teacher of this subject in Paris and later a professor of analysis. He published the result of his researches on the integral calculus; in 1796 his famous book on astronomy, *Exposition du Système du Monde* appeared, and in 1799 the still more famous *Mécanique Céleste*. His researches into the movements of the tides, the planets and the solar system generally have won for him a reputation as the greatest of French astronomers. He was equally great as a physicist, and in physics, too, his researches were of profound significance. Laplace was made a marquis and died March 5, 1827.

Lapland District of Europe. In the extreme north, it is in Sweden, Norway and Finland. It is a thinly peopled land of forests and morasses, owing its name to the Lapps, a race short in stature, with high cheek bones and snub noses. They are nomads and live by hunting and fishing. They number about 30,000 in Europe and there is a colony of them in Alaska.

La Plata Rio de. Name of a river estuary and city in South America. The estuary is made by two great rivers, Uruguay and Parana, and divides Argentina from Uruguay. It is about 200 m. long and at its mouth about 150 wide. There are several ports on the estuary, which is a great trading route.

The city of La Plata is in Argentina, 35 m. from Buenos Aires and five from its port, Ensenada. It is a modern place and has some fine buildings and parks. Pop. (1928) 185,800.

Lapwing Wading bird (*Vanellus aris-tatus*), also called the green plover and the pewit. It is found in Europe and Asia and winters in India and Africa. It has four toes. Its back is greenish and it

has white underparts. It feeds upon insects and worms. Its eggs are laid on the ground and are sold and eaten as plovers' eggs.

Larbert Town of Strathgairn, It is just outside Falkirk on the River Carron and 24 m. from Edinburgh. It is a railway junction. Pop. 1,700.

Larceny In English law a form of theft. The stealing and carrying away of goods "with intent permanently to deprive the owner thereof," constitutes larceny. It is a felony and can be punished by penal servitude for as much as 14 years. For simple larceny, or common theft, the maximum sentence is three years.

Larch Genus of deciduous cone-bearing trees (*Larix*). The common larch, *L. europaea*, native in the Alps, is a lofty tree from 80 to 140 ft. high, with needle-like leaves and small cones. Its hard, tough timber serves for poles, pitwood, railway sleepers and domestic building; and it also furnishes turpentine and bark for tanning. Largely planted in Britain, it suffers much from the larch canker fungus; hence other species, e.g., Japanese red and N. American western larch, are being tried.

Lares Roman household divinities. Originally each family had its tutelary deity, who became the centre of the household worship. The lares, or shrine, usually contained images or pictures of youths holding horns of plenty and plates. Public lares had chapels at crossroads.

Largo Seaport of Fife-shire. It is on Largo Bay, an opening of the Firth of Forth 3 m. from Leven. It has a fishing harbour, and remains of a castle. Largo Law is a hill near, 960 ft. high. Pop. 2,274.

Largs Burgh and watering place of Ayr-shire. It stands on Largs Bay, 43 m. from Glasgow, on the L.M.S. Rly. Near here, in 1203, a Norwegian army was defeated by King Alexander III. and Norway was compelled to give up the Hebrides. Pop. (1931) 6,115.

Lark Name of a family of birds (*Alaudidae*). There are many species but only a few are seen in Great Britain. The chief are the skylark and the wood lark, both of which make their nests in the country. The crested lark, the shore lark and others visit the country and, like the other larks, are fairly general in the warmer parts of Europe and Asia.

Larkspur Popular name for the flower also called the delphinium (*g.v.*).

Larne Seaport, market town and urban district of Northern Ireland. It is in Co. Antrim, 24 m. from Belfast, and stands at the mouth of Lough Larne, an opening of the Irish Sea. The town has a good harbour. Pop. (1926) 8,100.

La Rochefoucauld Due de French writer. Born in Paris, Sept. 15, 1613, François de la Rochefoucauld served in the army. He mixed in the tangled politics of the time and figured in the wars of the Fronde, after which his time was passed mainly in social life in Paris. In 1663 the duke published the book on which his fame rests, *Reflections ou Sentences de Maximes Morales*. He also wrote some *Mémoires*, which are very valuable for the history of the time. He died March 17, 1680.

Larva Stage in the metamorphosis of many forms of animal life after

emergence from the egg. It usually differs considerably from the adult form. In marine forms, such as *Mollusca* and *Crustacea*, the larvae are pelagic, while the adult lives on the sea bottom. Among the amphibia some adult forms are terrestrial, while their larvae are aquatic. Among insects, the larva is concerned with feeding and growth while the adult is adapted chiefly for reproduction.

Laryngitis Inflammation of the mucous membrane of the larynx, or organ of voice. The acute form, resulting from catching cold, inhaling irritant vapours, swallowing hot fluids, or overstraining the voice, may be attended by hoarseness, a barking cough, a choking feeling, difficulty in swallowing, and impeded breathing. If repeated, or produced by excessive smoking, it may become chronic. When the epiglottitis swells the affection is called oedematous, and this serious condition may result from phthisis or syphilis.

Treatment.—Give inhalations of steam containing Friar's balsam (2 teaspoonfuls to 1 quart of boiling water); keep the patient in a warm room, and insist on absolute rest of the voice. For children, ipecacuanha is a good remedy (½ teaspoonful every half-hour until vomiting occurs), and a steam kettle in the room is soothing.

Laryngoscope Surgical instrument used for the examination of the interior of the larynx and trachea. It consists of a mirror fixed to a long handle, another mirror being adjusted to the brow of the operator and reflecting a powerful beam of light on the first mirror, which is placed at the back of the mouth.

Larynx In human beings a cartilaginous chamber lying below and continuous with the pharynx and leading to the trachea or windpipe. The cartilages forming the larynx are the thyroid in front, a ring-like oricord and two small arytenoids. A slit-like opening into the pharynx, the glottis, is bounded by a movable flap or epiglottis, which projects behind the tongue. The larynx contains the vocal cords, which extend across the cavity and are concerned in the production of the voice.

La Salle *Sieur de*. French explorer. René Robert Cavalier de La Salle was born at Rouen, Nov. 22, 1643, and went out when a youth to Canada. He made several voyages along the St. Lawrence and the Mississippi, and was the first to trace the Mississippi to its mouth in the Gulf of Mexico (1682). The vast Mississippi region he annexed as a French possession and was appointed its governor. In 1684 he landed by mistake in Texas and spent two years in trying to reach the Mississippi. While attempting to return to Canada he was murdered by his men, who became desperate, March 20, 1687.

Lascar Indian word used by the Portuguese for inferior army servants or camp followers, e.g., gun lascars. Long applied to Asiatic seamen, especially Indians on coasting or ocean-going vessels. It is officially recognised by the Merchant Shipping Acts as excluding non-Indians, e.g., Malays and Chinese. The Indian Government now limits it to deck hands.

Lascelles Name of a famous Yorkshire family. Its head is the Earl of Harewood (q.v.), and his eldest son is called Viscount Lascelles.

Lasker Emanuel. German chess player. Born Dec. 24, 1868, he soon showed extraordinary genius as a mathematician. On this subject he wrote a good deal, at the same time becoming famous as a chess player. In 1892 he won the championship of England and in 1893 the championship of the United States. In 1894 he became the world's champion and he retained this title until Casablanca beat him in 1920. In 1921 he was again beaten by Casablanca.

Laski Harold J. English political philosopher. Born in Manchester, June 30, 1893, he was educated at Manchester Grammar School and New College, Oxford. From 1914-1916 he lectured in history at McGill University, and from 1916-1920 at Harvard and, later, Yale. Connected since 1920 with the London School of Science, in 1921 he became Vice-Chairman of the British Institute of Adult Education. He has sat on many public committees, and has published articles on political economy.

Las Palmas Seaport, city and health resort of the Canary Islands. It stands on Grand Canary and its main industry is shipping, as steamers call here to coal. The buildings include a 16th century cathedral. There is a good modern harbour. Pop. 69,100.

Lassalle Ferdinand. German socialist. Born April 11, 1825, at Breslau, the son of a merchant, he was well educated, but adopted no profession. For some years he lived in Paris, Helne being among his friends. Having returned to Germany he took part in the rising of 1848 and was put in prison. Later he published his book, *System of Acquired Rights*, and in 1863 helped to form a national party of workers. A love affair with Helene von Donniges involved him in a duel at Geneva and on Aug. 31, 1864, he died from his wounds. The duel was the subject of Meredith's novel, *The Tragic Comedians*.

Lasso Hemp rope or rawhide thong ending in a slip-noose used for catching and throwing cattle on the ranches. It varies in length from 35 to about 100 ft. In the Argentine it is attached to the girth, but in North America to the saddle-horn. A form of lasso is used in Siberia for catching reindeer.

Last Measure for fish. A last consists of 13,200 fresh herrings. It is used in certain ports on the east coast of Great Britain as an alternative to the cran which is used in other ports.

Last Supper Paschal meal shared by our Lord with His disciples on the eve of His crucifixion. It is commemorated throughout Christendom in the Holy Communion or Eucharist (1. Cor. x.). It has inspired painters in all ages, notably in Leonardo da Vinci's wall painting in Milan. See EUCHARIST.

Laszlo de Lombo Philip Alexius. British painter. Born in Budapest in 1869, he was educated there and studied art in Paris. His portraits attracted much attention and, having settled in England, he was commissioned to paint King Edward VII., Queen Alexandra and other persons of note. In 1914 he was naturalised.

Latakia Seaport of Syria. It is 70 m. from Tripoli and has a good harbour from which the produce of the country is shipped. It occupies the site of Laodicea, and excavations have revealed remains of the

earlier city. The town gives its name to a kind of tobacco grown in Syria. Pop. 20,000.

Lateran Palace in Rome, once the residence of the popes. It was built in the 16th century on the site of an older building and is now a museum.

Near is the Church of S. John Lateran, long the papal church and therefore regarded as the mother church of the Christian world. There have been five Lateran Councils, the most important being the fourth held in 1215, which declared the supremacy of the Bishop of Rome, defined the doctrine of transubstantiation and made provision for a crusade.

The treaty of 1929 with Italy which recognised the independence of the Vatican state, is called the *Lateran Treaty*.

Laterite Deposit of yellowish or reddish coloured clay. It is found in India, the Sudan and parts of South America. These clays are very extensive and of considerable thickness, and result from the decomposition of rocks rich in iron minerals. Laterite is used locally for making mortar, cement and also tiles, etc.

Lathe Machine used for turning and shaping articles of wood, metal or other materials. Lathes vary in character from the simple "turn bench" of the watchmaker, where the work is rotated by a bow, to the modern types with crank and flywheel mechanically driven, often of great size.

Lathom Village of Lancashire. It is 3 m. from Ormskirk and was once a market town.

Lathom House, the seat of the Earl of Lathom, was formerly a castle and a seat of the Stanleys, from whom it passed in 1730. In 1645-46 the castle was defended by Charlotte, Countess of Derby, on behalf of Charles I., but she was compelled to surrender it after a prolonged siege. It was then destroyed. The present house, as built in the 18th century.

The title of **Earl of Lathom** was given in 1880 to Edward Bootle-Wilbraham, 2nd Baron Skelmersdale, who represented the two old families whose names he bore.

Latimer Hugh. English bishop. Born in 1490, or 1491, at Thurcaston near Leicester, the son of a yeoman, he became a clergyman and obtained a living in Wiltshire. In 1535 he was made Bishop of Worcester, but in 1539 he was imprisoned for not accepting the Six Articles. He resigned his bishopric, but soon returned to it. Meanwhile he had identified himself with the reformers, and during the reign of Edward VI. devoted himself to assisting Crammer in furthering the Reformation and in preaching. Soon after Mary's accession in 1553 he was put in prison. In Sept. 1555, after a trial at Oxford, he was found guilty of heresy and was burned with Ridley on Oct. 16. The spot is now marked by the Martyrs' Memorial. Some of Latimer's sermons are extant and have been published.

Latin Language of the Romans and one of the great classical languages of the western world. It belongs to the Indo-European group and was spoken by the Latini, a people living in central Italy some centuries before Christ. It became the language of the Romans and in it their great literature was written. The century before Christ and the early years of the Christian era were its great age. To the time belong Virgil, Cicero, Horace and the other great writers of classical Latin.

It is impossible to exaggerate the influence of the Latin language on literature in the west

of Europe and in North America. It is the foundation of French, Italian, Spanish and other romance languages, and has contributed largely to the development of English. It became the language of the Church and of education, and in consequence the language of botany and other sciences. For long, education, following the monastic tradition, was conducted in Latin, and our public schools show signs of this influence to-day.

Latitude Angular distance at the centre of the earth of any point upon the surface measured north or south from the equator. The equator is regarded as 0° of latitude, and parallels of latitude are imaginary circles on the earth's surface parallel to the equator. A degree of latitude equals 69½ m. . .

Latitudinarians (Lat. *latus*, broad). Name given to certain divines in the Church of England in the 17th and 18th centuries. They included Gilbert Burnet, Chillingworth, Tillotson and Hales, and were known for their liberal opinions, regarding creeds as of secondary importance.

Latium District of Italy. Before Rome became great, a district to the south of the Tiber was inhabited by the Latini and called Latium. The towns in it, Alba Longa being one, formed themselves into a league which in the 4th century was engaged in a war with Rome. The Latini were beaten and their territory became part of the republic of Rome. The name survives as that of the language spoken by the Romans.

La Trappe Monastery near Alençon in France. It was founded in 1140 as a Cistercian house and some remains of its church still stand. It is famous because it gave its name to the Trappist Order which was founded here in the 17th century.

Latten Variety of brass or bronze. It consists of copper and zinc, used in the form of thin sheets for making memorial plates and vessels in churches. The term is applied also to brass sheets for wire-drawing, and to the mild steel plates used in the manufacture of tin-plate.

Latter Day Saints Formal and correct name of the body known more usually as Mormons. It is really the Church of Jesus Christ and Latter Day Saints, and was adopted in 1834. See MORMONS.

Latvia Republic of Europe. It consists of Courland and other districts that before 1918 were part of Russia. Its area is about 25,000 sq. m. and the population is 1,883,000. It has a coastline of 340 m. on the Gulf of Riga and the Baltic Sea. Its other boundaries are Russia, Estonia and Lithuania. Riga is the capital and the chief seaport; other places are Libau, Dvinsk, Mitau and Windau. The country is flat and the soil fertile. There are many rivers, the chief being the Dvina. Agriculture is the chief occupation of the people, and rye, barley, oats, flax and potatoes are grown. A good deal of the land is forest. There is some fishing. About three-quarters of the people are Letts and over half are Protestants. The language is Lettish.

Latvia is governed by a president, elected for three years, a cabinet and a parliament of one house. Proportional representation is the rule at these elections. The country has a railway system and a state bank. There is a small army recruited by compulsory service. A state of Livonia, founded in the 15th

century, embraced what is now called Latvia, but after 1560 Courland became a duchy under the authority of Poland. In the 18th century Latvia was included in Russia.

In 1917 the Latvians decided to press for independence. In Nov., 1918, they declared their land a free state, and in Jan., 1921, their independence was recognised by the League of Nations, to which Latvia was admitted. The country's boundaries were fixed and a period of steady progress began, with socialism as a strong force in political life.

Laud William. English archbishop. He was born at Reading, Oct. 7, 1573, and educated at S. John's College, Oxford, of which he became a fellow. He held several livings but his abilities and energy soon marked him out for a larger sphere. Entering the Church he was made chaplain to several noblemen and was soon chaplain to James I. His advancement was rapid. He was elected President of S. John's, Dean of Gloucester, and in 1621 Bishop of S. David's. In 1626 Charles I. made him Dean of the Chapel Royal. From 1626-28 he was Bishop of Bath and Wells, and in 1628 he was made Bishop of London. In 1633 he became Archbishop of Canterbury.

The king's ecclesiastical policy in England and Scotland was inspired by Laud and was in general unwise and provocative. It aimed at establishing uniformity of worship on somewhat narrow lines, and was the cause of much unrest, especially in Scotland. In 1641 the House of Commons took action. Laud was impeached, and under a bill of attainder beheaded on Tower Hill, Jan. 10, 1645. A notable high churchman, Laud accepted much of the ritual and creed of the Roman Church and disliked Puritanism in all its forms.

Laudanum Name given to tincture of opium. It is a dark reddish brown liquid, standardised to contain 0.75 per cent. of anhydrous morphine. It is prepared by steeping powdered opium in dilute alcohol for some time, afterwards straining, pressing and filtering the product. Laudanum is used in prescribed doses as an anodyne and soporific.

Lauder Sir Harry MacLennan. Scottish comedian. Born Aug. 4, 1870, he earned a living as a coal-miner. His gift of song and humour attracted attention, and in 1900 he appeared as a professional in London, becoming extraordinarily popular. Some of the songs he sang were his own compositions. In 1920 he was knighted and retired from the stage, but in 1931 he reappeared in London. Lauder has written *A Minstrel in France* and *Roamin' in the Gloomin'*.

Lauderdale Duke of. Scottish politician. John Maitland was born at Lethington in East Lothian, May 24, 1616, a son of the 1st Earl of Lauderdale, whom he succeeded in 1645. He became a leading spirit among the Covenanters but soon changed sides, and in 1650 returned to Scotland with Charles II. Taken prisoner at the Battle of Worcester, he was not released until 1660.

With Charles II. on the throne Lauderdale became very prominent. He was a member of the Cabal and Secretary of State for Scotland, where he was responsible for the savage persecution of the Covenanters that took place between 1672 and 1680. He had also a good deal to do with the direction of affairs in England and in both countries he made himself hated. He left office in 1680 and died in Aug., 1682. In 1672 Lauderdale was made a duke but the title died with him.

Lauderdale Earl of. Scottish title held by the family of Maitland. They held land in Berwickshire, and in 1590 Sir John Maitland, Secretary of State under James VI., was made Lord Maitland of Thirlestane. His son was made an earl, and John, the second earl, a duke. When he died in 1682 the dukedom became extinct, but the earldom passed to his brother, Charles, and has since remained in the family. The earl is Hereditary Royal Standard-Bearer for Scotland. His eldest son is called Lord Maitland, and his seat is Thirlestane Castle in Berwickshire.

Lauds Service in the Roman Catholic Church. In the early church it was sung at daybreak. To-day it is sometimes said after matins. The Psalms 148, 149 and 150 are called the "lauds," or psalms of praise, and from these the service received its name.

Laughing Gas Name given to nitrous oxide. It is prepared by heating ammonium nitrate to 350°F., when the salt is resolved into the gas and water vapour. It is a colourless, transparent gas with a sweet taste, and when inhaled produces insensibility, hence its use as an anaesthetic in dental surgery and in operations of short duration. See ANAESTHETICS.

Laughing Jackass Australian name for a powerful bird, the largest of the kingfisher family (*Dacelo gigas*). With dull greenish-blue, brown-freckled plumage, it has a strident, clamorous laugh, and is protected for its skill in killing reptiles and mice. The same region possesses various other laughing kingfishers.

Launceston Borough and market town of Cornwall. It stands where the Kenese falls into the Tamar, 213 m. from London, on the Gt. Western and Southern Ryas. The chief objects of interest are the castle keep, the property of the Duchy of Cornwall, and the ruins of an old prison and Norman gateway. The borough includes Newton on the other side of the Kenese, once a separate town. The town is chiefly a centre for the sale of agricultural produce. Pop. (1931) 4071.

Launceston City and river port of Tasmania. It stands where the North and South Esk unite to form the Tamar, 40 m. from the sea, and is the chief town in the northern part of the island. It is connected by railway with Hobart. There is a shipping trade with Australia; other industries are smelting and the marketing of fruit. Pop. 24,000.

Laundry Establishment where washing and dressing of soiled linen and clothes is carried on. Laundry work is now done mostly by mechanical means. Rotary washing machines are used. These consist of a perforated cylindrical cage for the reception of the soiled linen, enclosed in an outer casing containing the soapy water. Hydro-extractors are used for the removal of water and the final drying is effected by dry air treatment, while ironing is carried out by gas or steam-heated rollers.

In Great Britain laundries are inspected by public health officials, and there are legal provisions about the hours of employment and the workers' conditions.

Laurel Name of diverse evergreen shrubs and trees with leathery, lance-shaped leaves. The laurel of antiquity was probably the Mediterranean bay tree (*Laurus nobilis*). The cherry laurel (*prunus Lauro-*

corvus) and the Portuguese laurel contain hydrocyanic acid. These three grow freely in Great Britain. Britain's only native laurel is the spurge (*Daphne laureola*). The Indian Forest Dept. call the decorative timber of the sap tree (*terminalia*) laurel wood. North America and Japan furnish other laurels.

Laurentian Rocks Pre-Cambrian metamorphosed rocks found in the Laurentian Highlands north of the St. Lawrence estuary. They now rank as the undermost archæan rocks, 30,000 ft. thick, upon which an upper Laurentian or Labradorian series rests unconformably. A primitive land area, called Laurentia, is thought to have existed from Canada to the Scottish Hebrides, its shores receiving the earliest palæozoic sediments.

Laurie Annie. Scottish heroine. She was a daughter of Sir Robert Laurie, a landowner of Maxwellton, Dumfriesshire, and was born in 1832. On her marriage in 1871 an unsuccessful suitor, William Douglas, wrote the song which has made her name immortal. The music was composed by Lady John Scott, who added a verse to the song.

Laurier Sir Wilfrid. Canadian statesman. Born Nov. 20, 1841, he was of French-Canadian, Roman Catholic parentage. He was educated at McGill University, Montreal, and became a lawyer and a journalist. In 1871 he was elected to the legislature of Quebec, and in 1874 to the House of Commons at Ottawa, where he represented East Quebec. In 1877 he was for a short time in the Cabinet.

An eloquent speaker, Laurier soon came to the front, and in 1887 was made the leader of his party, the Liberals. In 1896 a General Election gave the Liberals a majority and he became Prime Minister, a position he held for 15 important years. He gave preferential tariffs to Great Britain, restricted immigration and carried through other reforms. His proposals for reciprocity with the United States led to his defeat in 1911 and he resigned. As leader of the opposition, he favoured Canada's entry into the Great War in 1914, but objected to conscription. He died Feb. 17, 1919.

Laurium Mountain in Greece. It is about 30 m. south-east of Athens and was celebrated in ancient times for its silver mines. They belonged to Athens and from them the city obtained much wealth. Within recent years mining has been revived in the district and considerable quantities of silver and lead, as well as cadmium, manganese and iron, are produced.

Lausanne City of Switzerland. It stands on the north side of the Lake of Geneva, 38 m. from Geneva, and is an educational and literary centre. Here Gibbon wrote much of the *Decline and Fall*. Its port is Ouchy on the lake and it is the capital of the canton of Vaud. It has a broadcasting station (680 M., 0.6 kW.). Pop. 76,200.

The Treaty of Lausanne was signed, July 24, 1923, between the Allies and Turkey. It fixed the boundaries of Turkey as they are to-day. In June, 1932, the European Powers held a conference at Lausanne to discuss the question of war debts, and especially Germany's failure to pay reparations. An agreement was reached putting an end to reparations payments, Germany in return undertaking to contribute £150,000,000 towards the reconstruction of Europe. The payment, however, was not to be made at once and was dependent on an agreement about war debts being reached

between Germany's creditors and U.S.A. The president of the conference was Mr. Ramsay MacDonald (q.v.).

Lauterbrunnen Village and pleasure resort of Switzerland. It is in the Bernese Oberland, 8 km. from Interlaken, and is a good centre for the most beautiful of the Swiss scenery. Near is the Jungfrau.

Lava Molten rock poured out from a volcano. Lava may flow to a considerable distance when very fluid or form accumulations around the vent when viscous. As the lava flows, owing to the escape of steam, the surface becomes slaggy, while the interior forms a compact mass.

Laval Pierre. French statesman. Born in 1883, he became a socialist. In 1908 he was mayor of Aubervilliers and a little later he was elected to the Chamber of Deputies. He was made a senator in 1924, and in 1925 was Minister of Public Works. In 1926 he was Vice-President of the Council under M. Briand, and in 1930 Minister of Labour under M. Tardieu. In Jan., 1931, he became Premier and Minister of the Interior, and it was his lot to deal with the difficulties about the payment of reparations that arose in 1932. In Jan., 1932, he reconstructed his ministry, but a little later he was forced to resign.

Laval-Montmorency François

Xavier de. French prelate. Born at Laval, of a famous family, April 30, 1823, he entered the priesthood. In 1874 he became Bishop of Quebec, and, after the governor, the most influential man in the colony. He resigned his bishopric in 1883, but remained in Canada until his death, May 6, 1908.

Laval is known as the founder of the Laval universities of Quebec and Montreal.

Lavater Johann Kaspar. Swiss scientist. Born at Zürich, Nov. 15, 1741, he was there educated and became a minister. His whole life was passed in his native place, and much of his time was devoted to writing and study. He wrote poems and books on mysticism, but his claim to fame is his work on physiognomy, which has been translated into English. He died Jan. 2, 1801.

Lavender Genus of perennial herbs or shrubs of the labiate order (*Lavandula*). The cultivated *L. vera* bears erect branches with long stalked spikes of fragrant mature flowers, from which an aromatic oil is distilled; 250 lb. of flowers yield 1 lb. of oil. In England the flowers are grown for commercial purposes at Micham and Hitchin. Sea lavenders are species of statice of the plumbago order.

Lavenham Town of Suffolk. It is 10 m. from Bury St. Edmunds, on the L.N.E. Ry. There is a guildhall dating from the 16th century, and one of the finest churches in the county. At one time Lavenham was a flourishing market town and a centre of the cloth manufacture. Pop. 2000.

Laverstoke Village of Hampshire. It stands on the Test, 3 m. from Whitchurch, and contains the paper mills at which, since 1734, the paper for English bank notes has been made. They are owned by the family of Portal whose residence is Laverstoke House.

Lavery Sir John. Irish artist. Born in Belfast in March, 1856, he studied art in Glasgow and then in London and Paris, and became a celebrated portrait painter. In

1912 he was created A.R.A., and in 1931 R.A. He was knighted in 1918. His work may be seen in the National Portrait Gallery, London, in the collections in Glasgow, Liverpool, Manchester and at Ottawa and elsewhere abroad.

Lavoisier Antoine Laurent. French scientist. Born in Paris, Aug. 26, 1743, and there educated, he held official positions, including that of director of the state powder works, and gave much time to chemical research. He gave the name oxygen to the "dephlogisticated air" discovered by Priestley, and by his researches established the method of weighing chemical substances. He showed that matter is indestructible, and until recent times his theory was implicitly accepted. He was made farmer-general of the taxes, a position which led to his execution on May 8, 1794, a victim of the Revolution.

Law Word meaning rule or order. It is used in two main senses. The first is for an inevitable order of the universe, as the laws of motion or the laws of cause and effect.

In the second sense it refers to a rule laid down for human action, disobedience of which is likely to be followed by some penalty or inconvenience. The general name for such rules is law; the study of law is jurisprudence.

Men cannot live together in society without law, and laws appeared at a very early stage in human history. In their growth religion played a great part, and early laws were regarded as the commands of a god. This idea in modern times is partly responsible for what is known as the moral law. The early codes contain strong evidences of priestly influence.

Gradually among primitive peoples custom became an important factor in the development of law, and many early codes of law, e.g., the laws of the English before Norman times, are merely collections of accepted customs. The lawgivers of ancient times, such as Hammurabi and Moses, were not legislators in the modern sense. They did not make laws; they restated those already existent. The Greeks had a developed system of law, but modern law owes its greatest debt to the Romans.

Law has been classified in various ways. The Romans divided it into the civil, or national, law, and the law of nations, which is the basis of international law. This division premises that certain laws, or rules, are by their very nature binding upon all mankind, but others only upon a particular people or state.

Another division of law is into the civil law, and the canon, or ecclesiastical, law, and another is into the common, or unwritten law and the statute law, a classification familiar in England, while a third class is case law, or law as interpreted by the judges. In England, as in other countries, the criminal law has been separated from the civil law and this makes a further branch. Another distinction of importance to students is that between customary law and the Austrian definition of a law as the positive command of a sovereign, who has power to enforce it.

To-day every country has its own legal system, influenced by the national genius and history. Each system has three essentials; an individual, or body, with power to make laws; a body of judges to declare them, and another body to enforce them. The various legislatures are the law-makers. The judges declare the laws and the police, or a similar organisation, with an army in reserve, enforce them. International law must be excepted from

these statements, because as yet no power to enforce its orders has been created.

Law is one of the oldest subjects of study at the European universities. As a profession it attracts many thousands of men and a few women. Lawyers are divided into several classes, but entrance to each is everywhere a privilege guarded by educational and other tests. See BARRISTER, SOLICITOR, etc.

LAW AS A CAREER. The legal profession is divided into two classes, Barristers (called in Scotland "Advocates") and Solicitors; the two are closely interdependent, but no one may practise both. A barrister can only be employed through a solicitor, since, by an ancient custom, no layman may have direct communication with the bar. In England both branches are open to women.

As Law is one of the "learned" professions, so it is one of the most exclusive, by reason of the high standard of ability necessary, no less than on account of the long and expensive courses of training. For the first four or five years of his career the young barrister will earn next to nothing, and it is well to take this fact into consideration at the outset. But for a person of sufficient ability it offers a promising career with wide opportunities, while the scope for women is increasing.

A university degree, in Law or in Arts, is the best foundation for a legal training. Also it exempts from the preliminary examinations, and reduces the period of special training to three years.

Barristers. To become a barrister, a student enrolls himself as a member of one of the Inns of Court. During, or at the end of the period of special training (not less than three years), he must pass the bar examinations, for which he can prepare in several ways. He may attend the lectures arranged by the Council of Legal Examination (15 Old Square, Lincoln's Inn, London, W.C. 2), or attend university classes, or study privately, or "read in chambers." This last is usually done whether lectures and classes are attended or not. It consists of becoming a pupil to a barrister in order to gain practical experience. A fee of 100 guineas a year is payable.

The Inns of Court are four in number—Gray's and Lincoln's, the Inner and Middle Temples. Before being "called to the Bar" or certified as a qualified barrister, a student must pass the bar examinations, and must also keep twelve terms, i.e., three years. He fulfils the requirements of keeping terms by dining in hall a certain number of times each term. The number varies according to the status of the student.

Total fees (excluding a deposit of £150) are between £158 and £170, varying according to the Inn. Particulars of fees and of entrance examinations should be obtained from the Treasurer's Office of the Inn which the student intends to enter.

The Faculty of Advocates, Edinburgh, is the controlling body for admission to the Scottish Bar. The procedure and standards of the examinations are similar, but as Scots Law is different from English Law, an English barrister cannot practise in Scotland, and vice versa. The Irish Bar is controlled by the Honourable Society of King's Inn, Dublin.

Solicitors. To become a solicitor, it is necessary at the outset to pass an entrance examination set by the Law Society, the body responsible for the organisation of the profession. Membership is open to any qualified practising solicitor. It is then necessary to

enter into what is known as "service under articles" (as an articled pupil to a firm of solicitors) for a period of five years (three for the graduate). Premiums are frequently very high—varying from 100 to 500 guineas. There is also a Government stamp duty of £80 to pay on articles and £25 on admission.

Fees for law classes, which are attended during apprenticeship, and for examinations must also be taken into account. The final examination is usually taken at the end of the period of articled service, and success in it entitles the student to seek admission to the Roll and to practise as a solicitor.

Professional clerkships in a solicitor's office are paid anything from £200 to £500 a year, and more responsible posts are paid up to about £800 a year. In dependent practice or in partnership a successful man may expect to earn anything from £800 to £2000 a year according to the size of his business and its professional standing. The salaries of municipal and government solicitors range from £300 a year to £1500. Information concerning fees, entrance examinations, etc., may be had from the Law Society, Bell Yard, London, W.C. 2.

Law Andrew Bonar. British politician. The son of a Presbyterian minister, he was born in New Brunswick, Sept. 16, 1858, and educated in Glasgow. He entered business life in Glasgow with some relatives, and after a successful career in the iron trade he retired. In 1900 he was elected Unionist M.P. for a division of Glasgow; in 1902 he took office as Parliamentary Secretary to the Board of Trade, and in these years he made his reputation by his speeches in favour of tariff reform. In 1905 he left office and in 1906 was defeated in Glasgow, but almost at once was elected for Dulwich.

In 1911, although he had never sat in a cabinet, Bonar Law was elected leader of the Unionist Party in the House of Commons. As such he took a leading part in the great events of July and August, 1914, and later, when the coalition ministry was formed in 1915, he became Colonial Secretary. In the crisis of Dec., 1916, he acted with Lloyd George and became Chancellor of the Exchequer and leader of the House of Commons. In 1918 he left the exchequer, but he retained his other post until March, 1921, when he resigned for reasons of health. He had represented Great Britain in Paris at the Peace Conference.

In October, 1922, after the end of the coalition, and a general election which resulted in a Unionist victory, he became Prime Minister, but in the following May he resigned. He died Oct. 30, 1923.

Law John. Scottish financier. Born April 21, 1871, he was the son of a goldsmith in Edinburgh. In 1894 he was sentenced to death for killing a man in a duel, but escaped from prison and reached Amsterdam, and for 20 years or more travelled about Europe. His acute intellect was soon turned to the possibilities of credit. He could not persuade the Parliament of Scotland to take up his idea of a land bank, but he was more successful in France. With his brother, William, he started in 1916 a bank in Paris, and in 1918 the regent allowed him to make this a national bank. For a time it flourished, and in 1919 Law founded a company to trade in the region of the Mississippi, but soon the crash came. In 1920, having just been made Controller-General of Finance, Law found that he could not meet his obligations. His property was confiscated and he

left France. He lived in England in poverty for some years, and died March 21, 1939.

Law William. English mystic. He was born in Northamptonshire in 1686, and educated at Cambridge. He became a clergyman, but, as he refused to acknowledge George I., he did not obtain a living. For some years he was tutor to the Gibbon family, and his last years were passed quietly in Northamptonshire. He died April 9, 1741. Law wrote a good deal, but his fame rests on one book alone, *A Serious Call to a Devout and Holy Life*, 1728, long one of the most popular of its kind. He studied mysticism, became the leading interpreter in England of the ideas of Jacob Boehme, and wrote two books on the subject. He also wrote against the stage.

Law Agent Scottish equivalent of the English solicitor. They have a professional society and their duties and privileges were laid down by the law in 1863. To become a law agent the candidate must serve articles and pass examinations.

Law Court Building where justice is administered. The phrase law courts is used in England for the building in the Strand, London, in full, the Royal Courts of Justice, where the judges of the high court sit. Other capital cities have law courts. In Edinburgh the Parliament House is used; in Belfast a new building has been erected. Ottawa and Pretoria have law courts for Canada and South Africa, respectively. For the German republic the law courts are in Leipzig, and for the United States at Washington.

Lawes Sir John Bennet. English scientist. Born at Rothamsted, Dec. 28, 1814, he went to Eton and Brasenose College, Oxford. In 1832 he inherited his father's estate at Rothamsted and there, on leaving Oxford, he began experimenting with the growing of crops. The results were of high value to agriculture, and in 1899 the work was handed over to a trust he created, The Lawes Agricultural Trust, which still conducts it. He became F.R.S. in 1854, and in 1882 was created a baronet. Lawes died Aug. 31, 1900.

Law Lord Name given in England to the Lords of Appeal. They are six in number and sit in the House of Lords as life peers. With other members of the House of Lords who have held high judicial office they hear the appeals from the lower courts of law. In Scotland the judges of the Court of Session are made lords for life, but they are not members of the House of Lords. The salary of a law lord was £6000 a year, but was reduced by 20 per cent. in 1931.

Lawn Thin sun bleached fabric of linen or cotton. It is used for dresses, trimmings, handkerchiefs and the like. Formerly called cloth of Rheims, and in Tudor times Laune linen, it was named from the town of Laon. Some fine muslins are called lawns. Bishop's lawn is used for the sleeves of the robes of Anglican bishops.

Lawn Tennis Popular outdoor game played by both sexes. The implements are rackets and balls, and it is played on a court 78 ft. long and 36 ft. wide. The court is divided into two equal parts by a net and further into sections by white lines, and the aim of the players is to hit the ball so that it falls within the court, but at such a pace, or in such a position, that it cannot be returned. A failure to return the ball counts a point to the other side. The score goes 15, 30, 40, 50, so that four points can make a game.

If, however, both sides reach 40, or deuce, the game is continued until one side is two points ahead of the other. The side that wins six games scores a set, but here again if the sides reach 5 games each, the set cannot end until one side is two games in front. Sets of 12-10, or thereabouts, are quite usual.

The game is usually played by two persons against two, but it can be played by one against one. In this case the court is less broad, a portion at each side, 4 ft. 6 in. wide, being now outside it. Grass courts are the more common, but of late years many hard courts of gravel, cement or asphalt have been laid down. On these the game can be played throughout most of the winter. There are regulations about the weight and size of the balls, but none about the rackets.

There are tennis clubs all over Great Britain and Ireland; also in the United States, Canada, France, Japan and other countries. The great event of the lawn tennis year is the international meeting at Wimbledon, where players from all over the world meet to decide the various championships. Since the Great War American players have often been successful in the men's games, although France has won a number of victories. Among the women the outstanding player has been Suzanne Lenglen. In the early days of the championship matches, which began in 1877, players from Ireland were the most notable exponents of the game.

The game in Great Britain is governed by the Lawn Tennis Association, which was formed in 1888. Its address is 28 Essex Street, London, W.C. 2. Professionals are recognised for coaching and other purposes, but are strictly debarred from matches and competitions.

The Davis Cup is contended for by male teams from the various countries. The Wightman Cup is fought out between woman players from Great Britain and the United States.

The game developed from real tennis and was at first called sphairistike (*q.v.*). It was played in 1874 and soon took its modern form. Names of great players include the Irish brothers Renshaw and Doherty, Borotra and Cochet, and the Americans Tilden and Ellsworth Vines, who won the singles championship in 1932. Famous women players include Suzanne Lenglen and Mrs. Helen Wills Moody.

Lawrence Christian saint and martyr. Born, according to tradition, at Huesca, Spain, he became a deacon in Rome. During Valerian's persecution in 258 he was ordered to produce the church's treasures. He showed some beggars, and was sentenced to be burned alive in an iron chair, usually represented as a gridiron. The church which Constantine erected over his tomb, much restored and adorned with frescoes and mosaics, is one of Rome's seven pilgrimage churches. He is commemorated on Aug. 10.

Lawrence Arabella Susan. English politician. Born in 1871, she was educated at Newnham College, Cambridge, and began to work among the poor in London. In 1912 she became a member of the London County Council and she kept her seat until 1928. In 1923 she was chosen Labour M.P. for East Ham, North, and represented that constituency again, 1924-31, when she was beaten. In 1929-31 she was Parliamentary Secretary to the Ministry of Labour, and held several important posts in the Labour movement, including organiser of the National Federation of Women Workers and deputy chairman of the Labour Party.

Lawrence David Herbert. English writer. Born at Eastwood, Sept. 11, 1885, the son of a coal-miner, he was educated in Nottingham. In 1911 he published his first novel, *The White Peacock*, and in 1913 he made his name with *Sons and Lovers*, a realistic story of life among the coal-miners. Henceforward his life, passed partly in Mexico and partly in Italy, was occupied with literature and art. His other novels include *The Trespasser*, *The Lost Girl*, *The Plumed Serpent*, *Kangaroo*, *The Ladybird* and *The Prussian Officer*, a volume of stories, *The Rainbow* was suppressed and *Lady Chatterley's Lover* was printed abroad. He wrote a good deal of verse, including a volume called *Pantheas*, some essays and some plays. He died March 3, 1930.

By some Lawrence is regarded as a great literary artist, but his realism revolted many. In his genius there was a strong morbid strain.

Lawrence Lord. English administrator. John Laird Mair Lawrence was born at Richmond, Yorkshire, March 4, 1811, and educated at Foyle College, Londonderry, and at Haileybury. He joined the service of the East India Company in 1829, took part in the war against the Sikhs in 1846, and when the Punjab had been conquered was given charge of it. His energy and resource did much to keep the district loyal during the Mutiny, and he was able to lead an army of Sikhs from there to the relief of Delhi. He retired in 1858, but returned to India in 1864 and served as Governor-General until 1869. He was then made a baron. He died June 27, 1879, and was buried in Westminster Abbey.

Lawrence Sir Henry Montgomery. English soldier. Born in Ceylon, June 28, 1806, an elder brother of Lord Lawrence, he entered the Indian army in 1823. He served in the various wars of the next 25 years, including those against the Afghans and the Sikhs. In 1818 he was knighted and for a time he served with his brother in the Punjab. When the Mutiny began he was at Lucknow and he led the defence of the Residency there for four months until he was wounded, dying July 4, 1857.

Lawrence Sir Herbert Alexander. English soldier. Born Aug. 8, 1861, he was a son of the great Lord Lawrence. He entered the army and as a cavalry officer served in the S. African War, but later left the army for business. In 1914 he rejoined and saw service as a staff officer in Egypt and Gallipoli. Knighted in 1917, in 1918 he was Chief of the Staff to Sir Douglas Haig. In 1919 he left the army and became chairman of the banking firm of Glyn, Mills, Currie & Co., and a director of other large concerns.

Lawrence Sir Thomas. English artist. He was born in Bristol, May 4, 1769, the son of an innkeeper. He painted portraits when only a child, and later studied art in London. He soon made a reputation and was elected A.R.A. in 1791, and R.A. in 1794. In 1792 he was made painter to the king, and in 1815 he was knighted. In 1820 he was chosen President of the Royal Academy and he died in London, Jan. 7, 1830.

Lawrence was the most fashionable portrait painter of his day and his subjects included many notable European figures. Many Lawrence portraits are at Windsor and in the National Portrait Gallery, London.

Lawrence Thomas Edward. English soldier and explorer. Born Aug. 15, 1888, he was educated at Oxford High

School and Jesus College, Oxford. A scholarship enabled him to go out to Syria in 1910, and during the next four years he learned a great deal about the Arabs and did excavation work at Carchemish. In 1914 he was employed on geographical work at the War Office, and in 1915 he was sent out to Egypt, Turkey having just entered the war against Great Britain. He then went on to Arabia, where his knowledge of Arab life was invaluable. In that country, negotiating with the Arab tribes, organising them for war and leading them in battle, he was the mainspring of the campaign which destroyed the Turkish influence in that region. Officially he was a staff officer with the rank of colonel of the British army.

In 1919 Lawrence attended the Peace Conference in Paris, but he soon left it in disgust. He was made a fellow of All Souls College, and in 1922-23 he acted as adviser to the Colonial Office. In 1922 he enlisted as a mechanic in the air force as T. E. Shaw, a name which he took by deed poll in 1927. He wrote an account of his adventures as *The Seven Pillars of Wisdom*, 1926. An abridged edition, called *Revolt in the Desert*, appeared in 1927.

Lawson Sir Wilfrid. English politician. Born Sept. 4, 1829, the son of the 1st baronet, he became M.P. for Carlisle in 1859, for Cockermouth (1886-1900), for the Camborne division (1903-05) and again for Cockermouth in 1906. He died July 1, 1906. In his day Lawson was one of the best-known men in England, chiefly on account of his advocacy of temperance and kindred reforms.

Lawyer Member of any branch of the legal profession. In England and elsewhere it includes barristers and solicitors; in Scotland advocates, writers to the signet and law agents. Each of these has its own professional organisation. See BARRISTER, SOLICITOR, LAW.

Laxative Substance gently stimulating the action of the bowels. It may be a food, e.g., cabbage, brown bread, honey, prunes; or a mild medicine, e.g., sulphur, magnesia.

Laxtonberry Fruit first raised in 1930. It is a cross between the raspberry and the loganberry and is grown in the same way as the latter. To ensure fertilisation it should be planted near other fruit trees.

Layamon English poet. He was a priest who lived in Worcestershire in the 12th century. He was the author or translator of *Brut*, a poem of great value to students of the English language. He took an existing story written by Wace and turned it into rhyme. Brut, a descendant of Aeneas, is represented as the ancestor of the Britons.

Layard Sir Austen Henry. English scholar. The son of a clergyman, he was born in Paris, March 5, 1817. He was educated mainly in Italy, but later studied law in London. Between 1845 and 1847 he did most valuable work on the ruins of Nineveh, publishing its results in his *Nineveh and its Remains* and other works, and sending some of his specimens to the British Museum. Later he explored the ruins of Babylon and wrote *Nineveh and Babylon*. From 1852-57 and again 1860-69 Layard sat in Parliament. From 1861-66 he was Under Secretary for Foreign Affairs, and from 1868-69 Chief Commissioner of Works. In 1869 he was sent as ambassador to Madrid, and in 1877 to Constantinople. He died July 6, 1894.

Layering Method of propagation of plants in which an artificial sucker is formed by bending over and pegging down a branch into the soil. A strong shoot is chosen, the lower leaves removed, and the stem partially cut across a joint; it is then pressed into suitable soil at an angle and held in position by a peg. At the partially severed joint roots are soon formed, producing a new plant which can be detached from the parent.

Layman One who is not a professional. It is used chiefly for those who are not priests, clergymen, or ministers. Convocation in the Church of England has houses of laymen, one for the province of Canterbury and another for that of York. They were set up in 1886, and the members are elected by the diocesan conferences.

Lay Reader In the Anglican Church a layman licensed by a bishop to perform various duties. They take extra services in consecrated buildings and assist the clergy in other ways, but do not administer the communion. They were established in 1866.

Lazarette Public hospital for the quarantine of persons with contagious diseases. The word is connected with Lazarus, who is supposed to have suffered from leprosy.

Lazarists Order of secular priests. They are dedicated to missionary work in rural districts, instruction of the ignorant and training of youth for the priesthood. The order was founded by S. Vincent de Paul, confirmed by Urban VIII. in 1632, and established in the Collège de S. Lazare, Paris. They are also called Vincentians.

Lazarus Character in the New Testament. He was a wealthy and influential native of Bethany whom Jesus raised from the dead (John xi-xii.), and with whom and his sisters Martha and Mary he was a frequent guest.

Another Lazarus is the beggar mentioned in the parable of the rich man (Luke xvi.). The word is the Greek form of the Hebrew Eleazar.

Lazulite Blue or greenish-blue vitreous mineral occurring in Switzerland, Sweden and Brazil. It consists of phosphate of aluminium and iron with some magnesium hydroxide.

Leacock Stephen Butler. Canadian writer. Born in Hampshire, Dec. 30, 1869, he went to Canada when a child and was educated at Upper Canada College and the University of Toronto. For some years he was a teacher at his old school, but in 1903 he became Lecturer in Political Science at McGill University, Montreal, and in 1908 he was appointed Professor of Political Economy there. Leacock wrote several books on political economy, including *Practical Political Economy*, 1910, and also biographies and essays on literary subjects. His reputation, as far as the general public is concerned, rests on his volumes of short, humorous stories, such as *Literary Lapses*, *Nonsense Novels*, *My Discovery of England*, *Moonbeams from the Larger Lunacy*, *Short Circuits* and *Winnowed Wisdom*. In 1932 *The Dry Pinkie* appeared.

Lead Important metallic element. It has the symbol Pb, atomic weight 207.2 and melting point 327°C., and is one of the most widely distributed and useful of metals. Its principal ore is the sulphide, galena and cerussite, the carbonate is also valuable.

Lead is a very soft, bluish-grey metal, very malleable, ductile and heavy, but with little tenacity. It readily tarnishes in moist air, but the layer of oxide formed protects the surface from further change. The metal is used in sheet and other forms for roofing, pipes, cisterns, etc., and its compounds have many industrial applications.

The world's annual production of lead is about 1,500,000 tons, or rather more than the consumption. As it is chiefly mined with silver, it is not surprising that the United States and Mexico provide half the supply. Australia, Canada, Germany and Spain produce each over 100,000 tons a year. Burma is the next producer and the large supplies in Rhodesia are not yet fully worked. Great Britain produces about 10,000 tons a year.

Lead Plummets or sinkers used for sounding the depth of the sea. Shallow waters are easily sounded by letting down a piece of lead attached to a marked line and greased with tallow, which brings up samples of the sea bottom.

Leadenhall Market in London, between Cornhill and Aldgate. It dates from the 13th century, and is the chief London market for poultry. The buildings date from 1831 and are entered from Leadenhall and Gracechurch Streets. The site of East India House in Leadenhall Street is now occupied by the building of Lloyd's.

Leader Benjamin Williams. English artist. Born at Worcester, March 12, 1831, the son of E. Leader Williams, he studied art in his native town, and in London, and made a reputation by his English landscapes. In 1883 he was elected, A.R.A. and in 1888 R.A. He died March 29, 1923.

Leadhills Village of Lanarkshire, 18 m. L.M.S. Rly. Here are some old lead and silver mines and the village, 1300 ft. up, is the highest in Scotland. Pop. 850.

Lead Poisoning Disease attacking workers using lead compounds. Formerly common in pottery-glazing, painting, printing, plumbing and other industries, it was the subject of legislation. Attacks must now be notified, workers must be medically examined and adequate ventilation and cleanliness maintained in the works. Women and young persons may not be employed as painters with lead paint.

Leaf Outgrowth from the stem of a plant forming a lateral expansion of varying form and function. In a foliage leaf the cuticle and epidermis have numerous openings or stomata leading to the air spaces in the cellular tissue or mesophyll and functioning in transpiration. The mesophyll is traversed by veins or vascular bundles, continuous with those of the stem, and it contains the chlorophyll grains which give the green colour to the leaf and function in carbon assimilation under the action of sunlight. A typical foliage leaf consists of a leaf base, stalk or petiole, and blade or lamina.

Leaf insect is the name given to a large class of straight-winged insects (*Orthoptera*). The body is comparatively large and flat and the legs resemble bits of stick or a leaf.

League Association or alliance of a permanent character, especially between states. They existed among the Greek states. The Hanseatic League was a union of cities, chiefly German, for economic

ends, which was at its height in the 14th century and a modern example is the League of Nations.

To-day the word is used for political and social organisations such as the Anti-Gambling League. It is also much used in sport for a group of clubs which play matches with each other for a championship.

League Name given to a measure of length. It varies in different countries, but in Britain it is equivalent to three English miles or in nautical measure to three knots or the twentieth part of a degree. The Gallic or Roman league was equal to 1500 paces or roughly one and a third English miles.

League of Nations International organization. It came into existence Jan. 10, 1920, as part of the treaty that followed the Great War. Its headquarters are at Geneva. It has over 50 members, including all the leading countries of the world except the United States, Russia, Mexico and Brazil. Each of the dominions of the British Empire is a separate member with its own vote. English and French are the official languages. The cost of the league is over £1,000,000 a year, paid by subscriptions from its members.

The aims of the League are laid down in the Covenant: "The High Contracting Parties, in order to promote international co-operation and to achieve international peace and security by the acceptance of obligations not to resort to war, by the prescription of open, just and honourable relations between nations, by the firm establishment of the understanding of international law as the actual rule of conduct among Governments and by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organised peoples with one another, agree to this Covenant of the League of Nations."

The Covenant of the League contains fundamental clauses on the prevention and settlement of disputes. These clauses bind nations who are members of the League not to employ force for the settlement of a dispute until they have first submitted it to the League of Nations (or to arbitrators or to judges), waited at least six months for the award or decision, and then allowed at least three more months to elapse.

The organisation of the League is in five sections. The assembly is a meeting held each September when three representatives from each member state attend. The council, which meets at least four times a year, consists of representatives from five states that are permanent members and from nine others who are temporary members. The permanent members are Great Britain, France, Italy, Germany and Japan. The temporary members are elected each year. The Secretariat, under the Secretary General, is the civil service of the League. The two other departments are the permanent Court of International Justice at the Hague and the International Labour Office at Geneva, which aims at improving the condition of labour all over the world.

The League does much of its work by means of commissions and inquiries, and deals not only with disputes between nations, but with matters concerning boundaries, health, finances, transit, etc. Under its auspices several important conferences have been called, including several on disarmament.

Leamington Borough and inland watering place of War-

wickshire. It stands on the Leam, 2 m. from Warwick and 98 from London. There are pump rooms and gardens and much accommodation for visitors. Its early name was Leamington Priors, altered afterwards to Royal Leamington Spa. Pop. (1931) 29,662.

Leander In Greek story the lover of Hero, the priestess of Sestos. In order to visit her he swam the Hellespont from Abydos. One night the light from the lighthouse at Sestos failed him and he was drowned. The Leander Rowing Club with headquarters at Putney, London, was founded in 1818.

Leap Year Year of 366 days occurring every 4 years. It was introduced by Julius Caesar in 46 B.C. in the Julian calendar, in order to adjust the calendar year to the solar year, which is not quite 365½ days. The slight over-correction is put right by omitting leap year at the proper long intervals.

Lear Edward. English writer of Danish descent. Born in London, May 12, 1812, he became a draughtsman. He exhibited regularly at the Royal Academy and spent much time in travel, writing and illustrating accounts of his journeys. In 1846 he published *The Book of Nonsense*, and on this and his other volumes of verses, *More Nonsense Rhymes and Laughable Lyrics*, his fame rests. He died Jan. 30, 1888.

Lease Word used in English law in connection with real property. A lease is granted by an owner called the lessor to a tenant called the lessee. Farms and large houses are usually let on lease, the period being usually 7 or 14 years, though it may be less or more. A lease for three years or more must be in writing. In the case of repairing leases, the tenant must keep the premises in good repair.

A mining lease is a permission to work minerals. It is given by the owner of the land who usually receives payment in the form of a royalty on each ton of mineral taken out of the ground. Coal, tin and other minerals and metals are worked in Great Britain under mining leases.

Leasehold Name used in England for land held on a lease, the other kind of land being freehold. In a sense, however, all land is freehold, as someone owns the freehold of a piece of leasehold land. Leasehold land is let out for a term of years, usually 99, for building purposes, the payment for it being called the ground rent. At the end of the period the land and the buildings thereon become the property of the person who owns the land, or his successors. Several attempts have been made to end this system, but without success. It is, however, possible to convert a leasehold into a freehold by buying the land outright. Leaseholds are regarded in English law as personal not as real property.

Leasing In Scots law the offence of making seditious statements about the king and the government of the country. It is not now treated as a crime, unless accompanied by seditious action.

Leather Skin or hide of an animal after being subjected to the process known as tanning, which preserves it from decomposition and gives it increased strength, toughness and insolubility for use in making footwear, gloves, saddlery, bags, etc. The skins of oxen, horses, sheep and goats are commonly used, but seal, whale,

fish and alligator skins have their own special application.

In preparing leather the hide is first cleaned, removing the hair, flesh, etc., and then tanned by one of the many methods now in use. In bark tanning the hides are steeped in an infusion of tannin, made from oak bark or other vegetable material, until conversion into leather is complete. In chrome tanning chromium compounds are used, giving a highly resistant material. Chamois leather is prepared by an oil treatment producing a soft pliable form of leather.

In England the main centres of the leather industry are Bermondsey, London and Leeds. In Bermondsey a technical college is maintained by the Leatherellers' Company, founded in 1444, one of the London livery companies. It has large estates, is interested in Colfe's Grammar School at Lewisham, and has a hall at 13 St. Helen's Place, Bishopsgate, London, E.C.

Leatherhead Urban district of Surrey. It stands on the Mole, 18 m. from London on the S. Ry. It is regarded as the original of picturesque Highbury in Jane Austen's *Emma*. Tanning, brewing and the making of bricks and pottery are the chief industries. Pop. (1931) 6916.

Leatherwood Sole American genus of shrubs of the spurge-laurel order (*Dicra*). The Atlantic and fornian species yield a tough inner bark used by N. American Indians for fibrous thongs. Their acrid properties are deleterious, both externally and internally.

Leatherwood is also the name of the close-grained timber of a tree that grows in New South Wales. It belongs to the saxifrage order and has a distinctive odour.

Leaven Term applied to the substance used in bread-making to cause the dough to rise, thus giving a spongy texture. This is due to fermentation and the production of minute bubbles of carbonic acid gas in the dough. The usual leaven is fermented dough prepared from flour mixed with water, salt and yeast. Aerated bread is made by forcing carbonic acid gas under pressure into the dough, thus giving porosity to the bread.

Lebanon Range of mountains in Syria. It is about 100 m. long and runs almost parallel to the Mediterranean. The average height of the mountains is about 7000 ft., though some exceed 10,000. Solomon's Temple was largely built of cedar wood from Lebanon.

Lebanon Republic of Syria. It is governed by France under mandate from the League of Nations. Formerly part of Syria, it was made a state in 1920. Its boundaries are the Mediterranean on the W., the Anti-Lebanon range on the E. and Palestine on the S. Its area is about 4300 sq. m. Beirut is the capital. Pop. 862,600.

Leblanc Nicolas. French scientist. Born in 1742, his fame rests upon the process for making soda from salt which he discovered by using sulphuric acid heated by a mixture of chalk and charcoal. He started a factory, but this was taken from him during the French Revolution. Late in the 19th century, his process was replaced by the Solvay method. Leblanc committed suicide, Jan. 16, 1806.

Le Bourget See BOURGET, LE.

Lebrun Albert. French politician. Born in Lorraine, Aug. 29, 1871, he was educated at Nancy where he studied engineering. In 1900 he was elected to the Chamber of Deputies, and in 1911 he was made Minister of Commerce, a post he held until 1913, when he was Minister of War for a few months. In 1917-18 he was Minister of Blockade under Clemenceau, and in 1919 Minister of the Liberated Regions. In 1920 he was elected to the Senate, and in 1926 became its vice-president. He succeeded M. Doumer as President of the Senate in May, 1931. A year later, after Doumer's murder, he was elected President of the Republic.

Le Brun Charles. French artist. Born in Paris, Feb. 24, 1619, he showed early talent. After spending some years in Rome he returned to France and was chosen by Colbert as the first director of the Gobelins tapestry factory. He founded the Royal Academy of Fine Arts in Paris and the French School at Rome. His work is seen in some of the decorations at Versailles. He died Feb. 12, 1690, in Paris.

Le Brun Marie Louise Elizabeth Vigée. French artist. Born in Paris, April 16, 1755, she studied under Vernet, and showed great skill in portraiture at an early age. In 1775 she married the painter, Jean Baptiste Le Brun, and for some years was a fashionable portrait painter in Paris, and a member of the Academy. Her works number over 800 portraits and 300 landscapes. Six of her paintings are in the Louvre, and she is represented in the National Gallery, London. She died in Paris, March 30, 1842.

Le Cateau Town of France. It stands on the River Salle, 15 m. from Cambrai. There in the Middle Ages the Bishop of Cambrai built a castle and the place was called Cambrai-le-Cateau. It was then in Flanders, but in 1678 it became part of France. In 1559 a treaty between France and Spain was made here. Pop. 12,000.

During the Great War, Le Cateau was continuously in the fighting area. During the retreat from Mons Sir H. Smith-Dorrien and his corps made a stand here on Aug. 26, 1914. The British, about 52,000 strong, held back the enemy until the afternoon, when the retreat was continued.

The second Battle of Le Cateau was fought Oct. 6, 1918, part of the final British advance. Three armies were engaged, and a great deal of ground was recovered, including Le Cateau.

Lecky William Edward Hartpole. Irish historian. Born near Dublin, March 26, 1838, he was educated at Cheltenham and Trinity College, Dublin, and became one of the foremost historians of the age. He was Unionist M.P. for Dublin University from 1895 to 1903. He died Oct. 22, 1903.

Lecky's chief works are two philosophical studies of great value and interest, *The Rise and Influence of Nationalism in Europe* and *The History of European Morals*, as well as *A History of England during the 18th Century*. He was given the Order of Merit in 1902. His *Life* was written by his widow.

Leconfield Baron. English title borne by the family of Wyndham. The first earl was George Wyndham, an illegitimate son of the last Earl of Egremont. He inherited the earl's great

wealth and was made a baron in 1859. The estates are around Petworth House, the family seat near Chichester.

Lecouvreur Adrienne. French actress. Born April 5, 1692, she first appeared on the stage in 1717. She soon made a reputation and for some years was the greatest tragic actress of the time. She died March 20, 1730. Madame Lecouvreur was also famous for her lovers, who included Voltaire and Marshal Saxe.

Lectern Term applied to reading desk in churches from which the lessons are read. It is made of wood, often elaborately carved, or of brass or bronze, and usually takes the form of an eagle with outstretched wings, supported on a central column.

Lectionary Book containing portions of Scripture prescribed for reading at public worship throughout the year, or a table of such lessons or portions. The practice of public Scripture reading, established in the Jewish synagogue, was continued in the early Christian church. The table of lessons in the Anglican prayer book was replaced by a new lectionary in 1879.

Leda In Greek mythology, the wife of Tyndareus, King of Sparta. Zeus, in the form of a swan, visited her when bathing. She thus became in one version of the story the mother of Castor and Pollux, Clytemnestra and Helen of Troy. The Leda and swan motive is represented on classical marbles, terra cotta, gems and wall paintings.

Ledbury Market town and urban district of Herefordshire, 13 m. from Hereford, on the G.W. Rly. The chief buildings are the church, with a detached tower, and the market house, and an institute is named after Elizabeth Barrett Browning who lived here. The main industries are tanning and malting. Pop. (1931), 3283.

Ledger In book-keeping the principal account book of a business. Into it all debits and credits are posted from the journals, cash book etc., so that it gives a complete record of financial transactions.

Lee Nautical term. It is the side away from the one from which the wind blows, and therefore the sheltered side. The other is the windward or weather side.

Lee District of London, in the borough of Lewisham, about 7 m. S. of the City on the S. Rly. There is a chapel built by Christopher Boone, and almshouses of the Merchant Taylors' Company. The manor house, once a residence of the Earl of Northbrook, is now a public library.

Lee River of England. It rises in Bedfordshire and flows into the Thames near Blackwall, 46 m. long and navigable. It is used to feed the New River. From Enfield Lock to Hackney a channel has been cut. The Stort is its chief tributary, and it is managed by a conservancy board with headquarters in London. The name is sometimes spelled Lea.

Lee River of Cork, Irish Free State. It rises in a lake and flows through the county for 45 m. until it falls into Cork Harbour. It passes Macroom and flows in two arms past Cork, to which city it is navigable.

Lee Nathaniel. English dramatist. Born in 1653, he was educated at Westminster School and Trinity College, Cambridge. He became an actor, but was more successful

as a writer of plays. He lived a very dissolute life and passed some years in Bethlehem Hospital. He died in 1692. Lee's dramas include *Nero*; *Gloriana*, or *the Court of Augustus Caesar*; *The Rival Queens of Alexander the Great*; and several others. With Dryden he wrote two tragedies in blank verse, *The Duke of Guise* and *Oedipus*.

Lee Robert Edward. American soldier. Born in Virginia, Jan. 19, 1807, the son of a general, Henry Lee, he became an officer in the army. He served in the engineers and gained experience in the war against Mexico (1846), and in service against the Indians. From 1852-55 he was Superintendent of West Point.

In 1861, on the outbreak of the Civil War, Lee threw in his lot with the Southerners and commanded a force sent to the confederate army from Virginia. In 1862 he was promoted to command the forces around Richmond and there he won some conspicuous successes completely turning the tide of war for a time in favour of the south. In 1863 he won a great victory at Chancellorsville, and, although defeated at Gettysburg, he managed to hold his own against superior forces who were aided by the command of the sea. In 1864 he conducted the famous Wilderness Campaign and succeeded in thwarting his opponent, Grant. In Feb., 1865, Lee was put in command of all the southern forces, but by then they were too weak to make any impression on the strengthened Northerners. On April 9, 1865, he was surrounded and forced to surrender at Appomattox Court House. In a short time he was pardoned, and he was President of Washington College, Lexington, from 1865 to Oct. 12, 1870, when he died.

Lee Sir Sidney. English writer. Born in London, Dec. 5, 1859, his name was Solomon Lazarus. He was educated at the City of London School and Balliol College, Oxford. He began his literary career on the staff of *The Dictionary of National Biography*, and in 1891 was made its editor, being now known as Sidney Lee. In 1898 his *Life of Shakespeare* appeared, and a revised edition in 1915. He also wrote *Lives of Queen Victoria* and *Edward VII.* His other books include *Great Englishmen of the 16th Century*, and *The Principles of Biography*. He was Professor of English Language and Literature at the East London College, and received many academic honours, including a fellowship of the British Academy. He was knighted in 1911 and died March 3, 1926.

Lee Sydney. English artist. Born in 1866, he studied art in Manchester and Paris. He won several prizes by his etchings and engravings as well as his paintings. His picture "Among the Dolomites" was bought for the nation and he has pictures in Liverpool, Glasgow and other cities, as well as in the South Kensington Museum. He was elected A.R.A. in 1922 and R.A. in 1930.

Lee William. English inventor. Born at Calverton, Nottinghamshire about 1560, he was educated at Cambridge. He became a clergyman and was at Calverton from 1582 to 1593. While there he invented a frame for knitting stockings more quickly than they could be knitted by hand. He took it to London and made a success of it. His concluding days were passed in Rouen and in Paris, where he died about 1610.

Leech Order of segmented worms. They possess suckers at one or both ends and live on the blood of animals. There are many species, some living in water and others in marsh land. The best known, both found in England, are the horse leech and the smaller leech much used at one time by medical men. The latter is about 2 in. long and sucks by making a triple wound with the tooth-like plate in its mouth.

Leech John. English artist. Born in London, Aug. 29, 1837, he was educated at the Charterhouse. In 1841 he joined the staff of *Punch*, and his 3000 drawings in that journal show a fund of humour, combined with great technical skill, and form a most valuable companion to the history of the age. He illustrated *The Christmas Carol* by Dickens, and other books. Many of his drawings are in the South Kensington Museum. He died in London, Oct. 29, 1864.

Leeds City and county borough of Yorkshire (W.R.). It stands on the Aire, 185 m. from London, and is served by both the L.M.S. and L.N.E. Rlys., as well as by canals to both the E. and the W. coast. St. Peter's is the parish church, while the Roman Catholics have the Cathedral, St. Anne's. Parks and open spaces include Roundhay Park and Woodhouse Moor. The ruins of Kirkstall Abbey and the estate of Temple Newsam belong to the city.

The chief industry of Leeds is the manufacture of cloth and clothing. Others are engineering works, leather works, printing works and factories for making shoes, chemicals, glass, etc. Leeds was made a county borough in 1888 and its boundaries were extended in 1897. In 1897 its mayor was made a lord mayor. Pop. (1931) 487,789.

The University of Leeds was founded in 1904, its nucleus being Yorkshire College, which consisted of the Leeds College of Medicine and the Yorkshire College of Science. It has fine buildings, including a block erected in 1928-32, and possesses equipment for all branches of scientific study. Its medical school is famous.

The Leeds and Liverpool Canal is a waterway, 127 m. long, connecting the district with the Mersey.

Leeds Village of Kent. It is 4 m. from Maidstone, and its castle stands on an island in the Medway. The building was formerly a fortress and its gateway and the drawbridge over the moat remain.

Leeds Duke of. English title borne since 1694 by the family of Osborne. Sir Edward Osborne was a London apprentice in the 16th century. He married his master's daughter and became very rich. His grandson, Edward, inherited his wealth, including estates in Yorkshire, and was made a baronet. His son, Thomas Osborne, was made Earl of Danby in 1674, and Duke of Leeds 20 years later. The titles passed to the duke's son and other descendants. Francis, the 5th duke, married the heiress of the Earl of Holderness and obtained Hornby Castle. He was Secretary of State from 1783 to 1789. When the 7th duke died in 1859, the title passed to a younger son of the 5th duke, whose descendant still holds it.

In 1931 the 11th duke sold the family estates, including Hornby Castle, which was pulled down. The duke's eldest son is known as the Marquess of Carmarthen.

Lee-Enfield Name given to the type of rifle modified from

the Lee-Metford and adopted by the British army and navy. The rifle has a length of 44½ in., with a weight of 8 lb. 14½ oz., and a calibre of .303 in. The range is 2000 to 3700 yards, for which there are two sets of sights. The magazine holds ten cartridges, fed to the barrel by a spring worked by a bolt action.

Lee of Fareham Viscount. English politician. Arthur Hamilton Lee was born Nov. 8, 1868, and educated at Cheltenham College. After a course at Woolwich he passed into the army and served therein until 1900. For part of the time (1893-98) he was a professor at the Royal Military Academy, Kingston, Canada. In 1900 he was elected Unionist M.P. for the Fareham division, and from 1903-05 he was Civil Lord of the Admiralty. In 1915 he became Parliamentary Secretary to the Ministry of Munitions, and in 1917-18 he was Director-General of Food Production. In 1919 he was made Minister of Agriculture, and in 1921 he became First Lord of the Admiralty. He resigned in Nov., 1922, having represented Great Britain at the Washington Conference. Since then he has been chairman of important royal commissions and actively connected with Anglo-American and other movements. In 1918 Lee was made a baron and in 1922 a viscount. He inherited the estate of Chequers (q.v.), which, in 1921, he presented to the nation.

Lee-on-the-Solent Watering place of Hampshire, 91 m. from London, on the S. Ry. Here are good sands and bathing.

Leek Hardy biennial bulbous herb of the lily order (*Oxalis porrum*). It is grown from seed and later transplanted into trenches, not unlike celery. The root is blanched like celery and cooked and eaten as a vegetable. The leek is the national emblem of Wales and is worn on March 1, St. David's Day.

Leek Urban district of Staffordshire. It stands on the L.M.S. Ry., 154 m. from London and is also served by a canal. Its fine old church of S. Edward has four Saxon crosses. The main industry is the manufacture of silk. Near the town is Rudyard Lake. Pop. (1931) 18,556.

Lees Urban district of Lancashire, just outside Oldham, on the L.M.S. Ry., 180 m. from London. The chief industry is cotton manufacture. Pop. (1931) 4738.

Lees-Smith Hastings Bertrand. English politician. He was born in India in 1878, and educated at Aldenham School and for the army at Woolwich, but he abandoned a military career and graduated at Queen's College, Oxford. He became known as an economist, and was connected with Ruskin College, Oxford, and the London School of Economics. In 1910 he was elected M.P. for Northampton, and he sat in the House of Commons as a Liberal until 1918. In 1922 he joined the Labour Party, and was elected M.P. for the Keighley division, but lost his seat in 1931. In 1929 Lees-Smith was made Postmaster-General in the Labour Ministry, and in 1931 he was for a few months President of the Board of Education. He resigned office in Aug., 1931, and in Oct. lost his seat in Parliament.

Leeward Islands Group of islands in the W. Indies. They lie between the Atlantic Ocean and

the Caribbean Sea and are called Leeward because of their position with regard to the trade winds. They extend from Porto Rico to Martinique and the British islands include Dominica, Montserrat, St. Kitts, Antigua, Anguilla, Nevis and some of the Virgin Islands. Barbuda and Redonda are dependencies. They cover 715 sq. m., and are under a governor, executive and councils. Sugar and molasses are produced, and lime juice is made. Cotton and tobacco are grown. Pop. 127,200.

Martinique, Guadeloupe and St. Martin belong to France. Those of the Virgin Islands that are not British belong to the U.S.A., having been bought from Denmark in 1916.

Left In politics a party holding advanced views, radicals or socialists. When the National Assembly met at Versailles in 1789 the extremists sat on the left of the hall, the moderates on the right.

Leg Limb supporting and moving the body. Most vertebrates have two pairs. Insects have normally three pairs; spiders, four; higher crustacea, five; some millipedes more than 100 pairs. The human leg or shank contains the tibia or shin bone, which enters into the knee joint and, aided by the fibula, into the ankle joint.

Legacy Money or property left to a person by will. A gift of a particular thing, a picture by Reynolds for instance, is a specific legacy. A general legacy is a gift of money out of the estate. If there is not enough money to pay all the legacies each must accept the same proportion, unless, by the terms of the will, one or more legacies are to have preference.

Legacy Duty Tax payable by persons who receive personal property owing to the death of another. In the case of real estate the same duty is payable, but it is called succession duty. Both rank as death duties. Legacy duty is payable by the recipient unless the person leaving the money orders it to be paid from the estate. The rate is 1 per cent. to husband, wife or lineal descendants; 5 per cent. to brothers and sisters and their descendants; and 10 per cent. to all other persons.

The duty is not payable when the total value of an estate is £15,000 or less, nor when the sum left to a widow or child under 21 years of age does not exceed £2000, nor when the total amount received by a husband, wife or lineal descendant does not exceed £1000.

Legal Tender Money or currency in which debts can legally be paid. In Great Britain and N. Ireland notes of £1 and 10s. are legal tender for payments of any amount. Bank notes of greater value than £1 are legal tender in England and Wales only. Gold coins are legal tender to any amount. Silver coins are legal tender up to £2 and bronze ones up to 1s.

Legate Ambassador, also called a nuncio, sent by the pope on errands of importance. They are usually cardinals and members of the papal court.

Legation Term used for the minister to a foreign country and his staff. It is also used for the building in which they conduct their business unless this ranks as an embassy. The land on which it stands is regarded by international law as part of the country it represents and the building is usually free from all rates and taxes.

Legend Something appointed to be read. Originally it was a

passage of Scripture read in divine worship and later something from the lives of the saints in monastic refectories, *e.g.*, Voragine's *Golden Legend*. It embraced also secular tales, *e.g.*, Chaucer's *Legend of Good Women*. From their fabulous tendency the word came to denote a story, often fancifully embroidered, differing from a myth because it concerned a nation, family or individual, and had a basis of truth. It denotes also an inscription on a coin, monument, or coat of arms.

Leghorn City and seaport of Italy, called Livorno by the Italians, on the W. coast, 12 m. from Pisa and 50 from Florence. Its fine harbour, enlarged in the 20th century, has made shipping the chief industry, along with shipbuilding and glass-making. At one time the city was famous for its straw hats and for a breed of fowl popular in Great Britain.

Leghorn, when a very small place, passed from one ruler to another until, in 1421, it became a dependency of Florence, then ruled by the Medici family, who made it a place of some importance. Pop. 129,100.

Legion Unit of the Roman Army, usually fixed at about 6000. In addition each legion had 300 cavalry and a number of auxiliary troops. There were 25 or 30 legions, each divided into 10 numbered cohorts, with an eagle as a standard.

Legion of Honour French order, founded by Napoleon in 1802. The president of the republic is the grand master, and there is a chancellor and a council. The badge is a five-armed cross surmounted by a laurel wreath and suspended by a red ribbon. Soldiers, sailors and civilians are alike eligible for membership, which, during the Great War, was given to soldiers of the allied countries. It was also given to towns in France and Belgium. Members are divided into five classes: grand cross, grand officer, commander, officer and chevalier.

In 1930 the Irish Free State decided to establish a Legion of Honour.

Legislation Making of laws. The making of new laws to meet changing conditions is an important part of the work of the modern state. In Great Britain legislation is primary, *i.e.*, the making of laws proper, or secondary, *i.e.*, the making of rules by local authorities or departments, to carry out the laws.

There is a Society of Comparative Legislation at 1 Elm Court, Temple, E.C. 4. See LAW.

Legislature Name used for any body that has the power of making laws. In Great Britain and other parts of the British Empire it is the two Houses of Parliament; in the United States the two Houses of Congress; and in France the Chamber of Deputies and the Senate. In some cases the legislative powers are limited by the constitution, which may often contain clauses defining the powers of each house. See PARLIAMENT.

Legitimacy State of being lawful or legitimate. It is usually applied in English and Scottish Law to cases of marriage and birth. Marriages are legitimate if neither party has a husband or wife living and if other conditions as to age and relationship are observed. Children are legitimate if they are born in lawful wedlock, or if the parents are subsequently married. If not they are illegitimate. Before 1926 a

subsequent marriage did not make children legitimate in England, although it did so in Scotland and other countries where Roman law prevailed.

Legitimists Name used for those who support the claim to the throne of a fallen dynasty. They believe that, although kings may lose their thrones, they cannot lose their rights, and therefore their claims remain good. In Great Britain the Jacobites, who hold that a descendant of Charles I. is the rightful sovereign, are legitimists. In France the legitimists believe in the claims of the Bourbons; in Spain they support the claim of Alphonso XIII. and his sons. See JACOBITES.

Legros Alphonse, French artist. Born at Dijon, May 8, 1837, of humble parents, he worked for a time as a painter and decorator. He studied art and settled in London, where he taught etching at S. Kensington. In 1876 he was appointed Slade Professor of Fine Art at University College, London, a post he held until 1892. Legros died Dec. 8, 1911.

Legumin Nitrogenous substance or protein. It forms one of the constituents of the reserve food material occurring in the seeds of the pea and broad bean, and belongs to the group of globulins, distinguished by their insolubility in water and solubility in saline solutions.

Lehar Franz, Hungarian composer. Born April 30, 1870, after studying at Vienna and Prague he became a conductor, producing his first opera, *Kukuska*, subsequently called *Tatiana*, in 1896. His charming melodies and waltzes have earned him great popularity, and among his successes may be mentioned *The Merry Widow*, *Paganini*, *Gypsy Love* and *Frederica*.

Leibnitz Gottfried Wilhelm. German scholar. Born at Leipzig, July 6, 1646, he lived for some time in Paris and visited London. His early study of the law was abandoned for mathematics, and he discovered a new method of the calculus, which led to a dispute with Sir Isaac Newton. He invented a calculating machine.

In 1676 Leibnitz was made librarian to the Duke of Brunswick at Hanover, and there he became a trusted friend of the family. He tried to reform the coinage, and to bring about something like a union of Christendom. In 1700 he persuaded Frederick I., King of Prussia, to found the Academy of Sciences at Berlin, and of this he was made president. He died at Hanover, Nov. 14, 1716.

Leibnitz possessed a powerful and original mind; his interests were multifarious and his influence great, but his best work was done as a philosopher. He expounded a system in which substance consists of atoms, or monads, each self-contained and individual, the whole forming a perfect harmony with its centre and creator, God.

Leicester City and county town of Leicestershire. It stands on the Soar, 99 m. from London, on the L.M.S. and L.N.E. Ryds., and has two canals. The County Hall, used for the assizes, includes the dining hall of the castle around which the town grew. Trinty Hospital is an old almshouse; the chantry house is now a museum, and there is a 14th century gateway. Leicester has a university college, a school of art and a technical school. S. Martin's church is now the cathedral. There are several fine parks

including Bradgate and Abbey, both with historical associations.

The making of hosiery is the principal industry; there are also factories for making boots and shoes, cotton goods, etc. In 1919 Leicester was made a city, and in 1927 it became the seat of a bishop. In 1928 its mayor was given the title of Lord Mayor. Leicester occupies the site of the Roman station, *Ratae*, and there are Roman remains as well as remains of its mediæval walls. Pop. (1931) 239,111.

Leicester Earl of. English title borne by several families. The first earls were the Norman Beaumonts, and later came Simon de Montfort (1206); Edmund, Earl of Lancaster, a son of Henry III. (1265); and in 1564 Robert Dudley. Robert Sidney, a brother of Sir Philip Sidney, was made earl in 1618, and the Sidneys held the title until 1743. Thomas Coke was earl from 1744 to 1759, and the Townshend family held the earldom from 1784 to 1856.

In 1837, Thomas William Coke was made earl, his title distinguished as Leicester of Holkham. He was a son of Robert Wenman, who took the name of Coke when succeeding to the estates of his uncle, the Earl of Leicester, who died in 1759. Thomas W. Coke, born May 6, 1854, inherited the estates in 1776 and became the most famous agriculturist of his day. He was for years an M.P. and a leading social figure. He drained and cultivated the land around his Norfolk seat, Holkham Hall, making it very productive. He did much to improve the breed of sheep and cattle and the quality of the crops. He died June 30, 1842, and the title is still held by a descendant. The earl's eldest son is called Viscount Coke.

Leicester Earl of. English courtier. Robert Dudley was born about 1532, a younger son of John Dudley, Duke of Northumberland. He was a member of parliament and served as a soldier, but he is best known as the husband of Amy Robsart and the suitor of Queen Elizabeth, whom he entertained in his magnificent castle at Kenilworth in 1575. In 1560 Amy Robsart, whom he married in 1550, died at Cumnor place, Oxford, probably by foul play; in 1573 he married Lady Shenfield and in 1578 he bigamously married Lettice, Countess of Essex, but all the time he was paying his addresses to Elizabeth. In 1564 Dudley was made an earl, and in 1585 he was sent with an army to the Netherlands, but he showed no great military skill. In 1586-87 he was Governor of the United Provinces, and in 1588 he commanded the force at Tilbury gathered to meet the Spaniards. He died Sept. 4, 1588, it is said by poison.

Leicestershire County of England. It covers 823 sq. m. and is mainly level, but contains Charnwood Forest with its hills and the Wolds in the N.E. Agriculture is the chief industry, and there is some coal mining. Leicester is the county town. Other places are Loughborough, Hinckley, Market Harborough and Coalville. Ashby-de-la-Zouch, Lutterworth and Belvoir are places of historic interest, and Melton Mowbray a hunting centre. The county is a famous hunting shire and is a first-class cricketing county. Pop. (1931) 302,683.

The Leicestershire Regiment was raised in 1688 and known as the 17th Foot. It has a long record of service and is called The

Tigers, from the regimental badge granted in 1804. The depot is at Leicester.

Leiden Town of the Netherlands, also called Leyden, 9 m. from the Hague. The Old Rhine flows through the town, which is well served by railways. There is a butter market and a watch house, and the museums contain valuable collections of antiquities and works of art. The industries include cloth-making, printing and a trade in farm produce.

Leiden is famous for its university, founded in 1575, at one time one of the greatest centres of learning in Europe. The great event in its history was its siege by the Spaniards in 1572-73, when it was relieved by flooding the adjacent land. Pop. 69,850.

Leigh Borough and market town of Lancashire, 11 m. from Manchester on the L.M.S. Ry. The main industry is the manufacture of cotton. Pop. (1913) 45,313.

Leigh-on-Sea Watering place of Essex. It is on the Thames estuary, 33 m. from London on the L.M.S. Ry. It adjoins Southend-on-Sea, and has been part of the borough since 1913. It has some shipping, and is a fishing centre.

Leighton Lord. English artist. Frederick Leighton was born in Scarborough, Dec. 3, 1830. He was educated mainly in Italy and studied art in Brussels, Paris, Frankfurt and Rome. He made a reputation with "Cimabue's Madonna carried in Procession" in 1855. In 1853 he settled in London, and in 1864 was elected A.R.A., and in 1866 R.A. In 1878 he was made President of the Royal Academy. Knighted in 1878 he became baronet in 1888 and baron in 1896. On Jan. 25, 1896, he died unmarried and was buried in St. Paul's Cathedral.

Leighton was a careful student of Greek art and had a remarkable sense of beauty. His pictures, mainly classical in style and subject, include "Paolo and Francesca," "The Harvest Moon," "Wedded," "The Bath of Psyche" and "Flaming June." He was also a fine sculptor as he proved by his "Athlete Struggling with a Python," now in the Chantry collection. He built, in 1866, Leighton House, at 12 Holland Park Road, Kensington. It is Oriental in style, and many of the decorations were brought from Syria. Its most notable apartment is the Arab Hall. It is now a public museum, and in 1928 two galleries were added.

Leighton Buzzard Market town and district of Bedfordshire. It stands on the Ouse, 41 m. from London, on the L.M.S. Ry. There is a beautiful market cross and an old school. The town lives chiefly on its agricultural trade. Pop. (1931) 7031.

Leinster Province of Ireland. It is wholly in the Irish Free State and covers the E. and S.E. part of the country. It contains 12 counties—Carlow, Dublin, Kildare, Kilkenny, Leix, Longford, Louth, Meath, Offaly, West Meath, Wexford and Wicklow. The Shannon divides it from Connaught.

The Leinster Regiment, formerly the 100th and 109th Foot, was disbanded in 1922. It was also known as the Royal Canadians.

Leinster Duke of. Irish title, borne since 1766 by the family of Fitzgerald. In 1316 a descendant of the 1st Baron of Offaly was made Earl of Kildare.

The 10th earl was executed in 1537. The family seat is Carton, near Maynooth, and the duke's eldest son is styled the Marquess of Kildare.

Leipzig City of Germany. It is in Saxony, 74 m. from Dresden and 104 from Berlin. Famous as a trading, musical and educational centre, and for its historic associations, it has the largest railway station in Europe, two airports and the supreme law court of the Republic. There are several museums, including one of the book trade, a stock exchange and fine theatres and concert halls. A tower of the citadel is now part of the town hall. It has been for centuries a centre of the bookselling and fur trades, and these are the chief articles sold at the famous Leipzig Fair, now held twice a year. The manufactures include chemicals, machinery, paper, scientific and musical instruments, etc. Printing is an important industry and owing to its position the city is a great distributing centre. It has a broadcasting station (259 M., 2 kW.).

The University of Leipzig, founded in 1409, is one of the most celebrated in Germany. It has an observatory and botanical garden, and an institute of agriculture. The schools include the noted Conservatoire of Music. Leipzig became a centre of Protestantism and the University was one of the strongholds of the reformed learning. Pop. 879,159.

The Battle of Leipzig, called "the battle of the nations," was fought Oct. 16-18, 1813, between the French under Napoleon, and the allied Russians, Austrians and Prussians. The French were defeated with heavy losses.

Leiston Urban district of Suffolk, 4 m. from Saxmundham on the L.N.E. Ry. The main industry is agricultural and the chief object of interest the abbey ruins. Pop. (1931) 4184.

Leith Port of Edinburgh, on the Firth of Forth, 2 m. N. of the city, on the L.N.E. and L.M.S. Ry. It has a large harbour, enlarged just before the Great War, and extensive docks, and is connected with Edinburgh by Leith Walk. The chief industry is shipping; others are distilling, sugar refining and the manufacture of chemicals.

Leith belonged for two centuries after 1329 to the citizens of Edinburgh and was several times attacked by the English. It had a citadel and was surrounded by walls. In 1533 it was made a burgh, but in 1920 it was included in Edinburgh.

Leith Hill Hill in Surrey, on the S. Downs, about 5 m. from Dorking and 965 ft. high, the highest point in the S.E. of England. There are fine views from the summit, on which is a tower.

Leitrim County of the Irish Free State. It is in the province of Connaught and covers 613 sq. m., with hills in the N. and E. The Shannon flows along its borders, and Lough Allen is the largest lake. Carrick-on-Shannon is the county town; others are Manor Hamilton, Mohill and Jamestown. Leitrim itself is a village on the Shannon. There is a small coalfield in the county, but agriculture is its staple industry. Pop. (1926) 55,907.

The title of Earl of Leitrim has been borne since 1795 by the family of Clements. The first holder was Robert Clements, an Irish M.P. The family estates are in Donegal and Leitrim, and the earl's eldest son is called Baron Clements.

Leix County of the Irish Free State, known until 1922 as Queen's County. In the province of Leinster it covers 664 sq. m. It is served by the Gt. S. Ry. and the Grand Canal. Maryborough is the county town; other places are Portllington, Mountmellick, Stradbally and Abbeylisc. The chief rivers are the Barrow and the Nore. Agricultural pursuits occupy most of the people, but the soil is not very fertile as there is much bogland. In the N. are the Slieve Bloom Mts. Pop. (1926) 51,540.

Leland John. English writer. Born in London about 1506, he was educated at S. Paul's School and Cambridge. He showed a distinct aptitude for research, and in 1533 became the Royal Antiquary. He wrote *Itinerary*, describing a journey through England and Wales which has been of great value to modern scholars. He left an immense collection of notes. His reason gave way and he died April 18, 1552.

Lely Sir Peter. English painter. He was born near Utrecht, Sept. 14, 1618, and studied art in the Netherlands. He settled in London in 1641, became an English subject and was knighted and made Court Painter by Charles II. He died Nov. 30, 1680.

Lely is best known for his portraits of the ladies of the court of Charles II., which are now in Hampton Court Palace.

Leman Gertritz Mathieu Joseph Georges. Belgian soldier. Born Jan. 8, 1851, he was educated for the army which he entered in 1872. In 1880 he was made professor at the military college, and in 1905 its commandant. In 1914 he was commanding the fortresses of Liège, which he defended against the Germans until it was taken. He remained a prisoner of war until Jan., 1918. Leman died Oct. 17, 1920.

Lemberg Town of Poland, known also as Lwow, in Galicia, 355 m. from Vienna. It is a great railway junction, and has cathedrals of the Greek, Armenian and Roman Catholic churches. The city has many manufacturing and other industries. Lemberg was founded in the 13th century, and its famous university dates from 1661. In 1772 it was taken from Poland and given to Austria, when it became the capital of Galicia. In 1919 it became part of the new Poland. Pop. 219,400.

There was much fighting around Lemberg during the Great War. After some hard and prolonged battles, it was evacuated by the Austrians and entered by the Russians in Sept., 1914. There was another great battle for it in 1915, and in June the Russians were driven out by the Germans.

Lemming Rodent of the vole family, about 5 in. long, yellowish brown in colour; it is found in Europe, Asia and N. America. It lives in the ground like the rabbit and feeds on grass. It is very common in Norway. It has a habit of migrating at certain times; in enormous numbers the animals move across the country, eating the crops on their way, until they reach the sea. They swim there until they are drowned. The banded lemming turns white in winter.

Lemnos Island of Greece in the Aegean Sea. It is 45 m. from the entrance to the Dardanelles. It covers 180 sq. m. The chief town is Lemnos, or Castro, and the chief crops fruit and tobacco. Mudros Bay, like Lemnos itself, was used by the Allies during the Great War against Turkey. The island

was a Turkish possession from 1478 to 1925. In ancient times it was famous for its earth, which was believed to cure cases of plague and poison. Pop. 25,000.

Lemon Oval fruit of an evergreen tree, apparently a variety of citron (*Citrus medica*), known only in its cultivated state. Extensively grown in Italy, Spain, Greece, California, Florida and S. Africa, its yellow rind furnishes candied peel and an essential oil; its pulp, as a juice, is used for lemonade and citric acid, and for various cooking and medicinal purposes. Large quantities are imported into Great Britain.

Lemon Mark. English writer and humorist. Born in London, Nov. 30, 1809, the son of a hop merchant, he became manager of a brewery in London. He founded and edited *The Field* and edited also *The London Journal* and *The Family Herald*. In 1841 he helped to found *Punch*, and he was its editor from 1843 to 1870, when it became a national institution. Lemon wrote many plays, including *Hearts are Trumps*, several novels and a good deal of other literature, including fairy stories and a *Jest Book*. As Uncle Mark he won a reputation as a lecturer, and he was also known as an amateur actor. He died at Crawley, May 23, 1870.

Lemonade Beverage comprising lemon juice diluted with water and sweetened with sugar. "Boiling water is poured on sliced fruit, sugar is added and it is left to cool. It is a palatable thirst-quenching drink, used hot or cold. A pinch of bicarbonate makes it effervescent. Aerated water flavoured with essence or peel of lemon is called lemonade.

Lemon Grass Name of several tall aromatic grasses. They are widely cultivated in the tropics for their essential oils. That sold as East Indian is distilled from *Andropogon squarrosus*, indigenous to Cochinchina and Tinian; West Indian comes from *A. citratus*, also produced in Ceylon and Malaya. They often masquerade as oil of verbena.

Lemon Sole Flatfish allied to the dab, extensively caught in trawlers in the N. of Europe. It is smaller but wider than the ordinary sole, to which it is inferior in flavour. It spawns in the spring and early summer. The fish is not allied to the true sole, the name being a corruption of the French *limande*, meaning dab.

Lemprière John. British scholar. He was born in Jersey about 1768, educated at Winchester and Pembroke College, Oxford, and became a schoolmaster. In 1792 he was made headmaster of Abington Grammar School, and, having been ordained, was vicar of Abington, 1800-09. He then went to Exeter as headmaster of the grammar school there, and later held livings in Devonshire. He died Feb. 1, 1824. Lemprière's name lives through his *Classical Dictionary* and his *Universal Biography*.

Lemur Family of monkey-like mammals. They are confined to Madagascar and the Comoro Islands, but at one time roamed over Europe and Africa. The head resembles that of the fox and the general appearance is something between a cat and a monkey. They live in trees and sleep during the daytime. Their food consists of small birds, insects, eggs, fruit, etc. The several species vary in size, but all are tameable and affectionate.

Lena River of Siberia. It rises near Lake Baikal in the S., flows mainly N. and falls into Nordensköld Sea, a branch of the Arctic Ocean. One of the longest rivers of the world, it is a gold-bearing stream, 2900 m. long. The property of the English company which worked the gold has been seized by the Soviet authorities. The Lena Islands are in the estuary.

Lenglen Suzanne. French lawn tennis player. Born at Compiègne, May 29, 1899, she won her first championship when only 14. From 1919 to 1925 she held the Ladies' Singles Championship at Wimbledon, and she won similar honours in France and the U.S.A. In 1927 she became a professional. She has written several books on the game, and her first novel was published in 1925.

Lenin Name taken by the Bolshevik leader, Vladimir Ilyich Ulyanov. He was born April 10, 1870, the son of a schoolmaster, and was educated at Simbirsk, his birthplace, and then at the University of Kazan. As a student he was a leader in the demonstrations against authority prevalent at that time. He went to St. Petersburg to study law, and was exiled to Siberia. Released in 1900, he lived for a time in Paris and London. He was in Russia during the brief revolution of 1905, after which he resided chiefly in Switzerland. During these years he was one of the leaders of international socialism.

In 1917 the German Government agreed to an arrangement by which Lenin and other leaders were to return to Russia. They passed from Switzerland to Germany in a closed train and reached Petrograd. Kerensky was then dominant in Russia, and the new arrivals were unable to overthrow him. Trotsky, who was by now closely associated with Lenin, was put in prison, while Lenin escaped by flight. With Trotsky released, they renewed their agitation and in Nov., 1917, they succeeded in destroying the authority of Kerensky. The new ideas of government worked out by them during the years of exile were then put into operation. A council of people's commissioners was set up with Lenin as president, and the system known as Bolshevism was established. Peace was signed with Germany and Moscow made the country's capital in March, 1918. Opposition was ruthlessly crushed and the system established by Lenin and Trotsky remained dominant. Closely guarded in the Kremlin, Moscow, Lenin retained his power until his death, Jan. 31, 1924. The Bolsheviks honoured his memory by a magnificent tomb. In 1920 Petrograd had been renamed Leningrad.

Leningrad City and seaport of Russia, formerly known as St. Petersburg and then as Petrograd, and until 1918 the capital of the country. At the mouth of the River Neva, the oldest part is on an island and the larger part on the left bank, and its harbour is used by medium sized ships. A ship canal leads to its outport, Kronstadt.

Leningrad has some fine buildings, including the famous winter palace overlooking the Neva. The Hermitage once housed one of the finest collections of treasures in Europe. The churches included the cathedrals of S. Isaac and the Kazan Cathedral, a model of S. Peter's at Rome; but both have been turned into museums. Other churches have been closed and dismantled. The fortress of S. Peter and S. Paul contains a famous prison. There is a university founded in

1819, and many colleges and schools. The famous thoroughfare long called the Nevski Prospect has been renamed Oct. 25 Street. The chief industry is shipping for which there are extensive docks. There are two broadcasting stations (1000 M., 100 kW. and 351 M. 1.2 kW.).

Leniugrad was founded in 1752 by Peter the Great who made it the capital. There have been several risings in the city, notably in March, 1917. In 1931 a scheme for rebuilding the city and restoring its prosperity was put forward. Since 1918 the population has declined; it is now about 1,500,000.

Lennox District of Scotland. It goes from Dumbarton to Stirling, and includes the county of Dumbarton and parts of the counties of Stirling, Renfrew and Perth. In the district are the Lennox and Kilpatrick Hills and the Campsie Fells. There was an Earl of Lennox in the 12th century, and a later earl was father of Lord Darnley. In 1581 Kame Stuart was made Duke of Lennox, but the title died out in 1672. In 1675 Charles II. gave it to an illegitimate son, Charles Lennox, Duke of Richmond, and it has since been held by the dukes of Richmond.

Lennoxtown Town of Stirlingshire, 11 m. from Glasgow on the L.N.E. Rly. It is a coal mining centre and has also textile mills. Pop. 2600.

Leno Dan. English comedian, whose real name was George Galvin. He was born Dec. 20, 1860, and won fame as an entertainer by his clog dancing. He was also something of an acrobat. In 1888 he appeared in London in the pantomime at Drury Lane, and for the next 20 years he was perhaps the most popular figure in variety entertainments. His native humour, unique of its kind and quite clean, delighted thousands. Leno died Oct. 31, 1904.

Lens Portion of a transparent medium, usually glass, enclosed between two surfaces which are parts of spherical or plane surfaces. In passing through a lens light rays are refracted and become more convergent or divergent according to the type of lens. Convex lenses, which are thicker at the centre than at the edges, are either double convex, plano-convex or concavo-convex. Concave lenses, thinner at the centre than at the edges, have corresponding forms to the convex type.

Lens Town of France. It is on a canalised river, 13 m. from Arras, and stands on a rich coal field, with engineering works and iron and steel industries. Buildings destroyed during the Great War have been rebuilt and industries restarted. A memorial church has been built by the Canadians.

In the Middle Ages and later, Lens was a fortified town; in Aug., 1649, the Spaniards were defeated by the French. In Oct., 1914, the Germans occupied Lens, and attempts to recover it failed, one being made in the Battle of Loos in Sept., 1914. The Germans evacuated it on Oct. 2, 1918. Pop. 30,100.

Lent In the Christian year the 40 days just before Easter. It begins on Ash Wednesday, and is for many a time of abstinence. It commemorates the 40 days passed by Christ in the wilderness. The French call it *carême*.

Lenthall William. English politician. Born in June, 1591, the son of a landowner in Oxfordshire, he was educated at Oxford. He became a barrister and in 1640

was elected M.P. for Woodstock. In 1641 Charles I. appointed him Speaker of the House of Commons, and he retained the office until 1653. Throughout the Civil War Cromwell addressed to him his letters about the campaign. He was speaker again in 1659 when the Rump was recalled. Lenthall was exempted from pardon in 1660 but he was unmolested and he died at his residence at Burford, Oxfordshire, Sept. 3, 1666.

Lentil Annual herb of the order *Leguminosae*. It grows in the Mediterranean region and bears single pale-blue flowers. Its seeds are a valuable article of food, as they contain a very high proportion of carbohydrates and protein. They grow in pods and can be cooked whole or split, or ground into a meal.

Leo Name of one of the constellations. It is situated just beneath the feet of the Great Bear, and contains a number of important stars, such as Regulus, or α Leonis; the blue star, Denebola, or β Leonis; and the double star, Algieba. It is also the fifth sign of the Zodiac, and as such no longer corresponds with the constellation.

Leo Name of 13 popes. The most important are Leo I., Leo X. and Leo XIII., who are noticed separately. Leo II. was pope, 682-83. Leo III., pope from 795 to 816, crowned Charlemagne emperor and was canonised in 1673. Leo IV., pope from 847-855, built the part of Rome called after him the Leonine city. Leo V. was pope in 903 and Leo VI. in 928. Leo VII. was pope, 936 to 939, and Leo VIII. from 964 to 965. Leo IX., a German, was pope, 1049 to 1054. Leo XI., like Leo X., a member of the Medici family, was pope for a few weeks in 1605. Leo XII. pope from 1823 to 1829, was a harsh and unpopular ruler at a time when liberal ideas were spreading rapidly in Europe.

Leo I. Pope from 440 to 461. He was chiefly occupied in combating heresies and in strengthening the authority of Rome. He is best remembered, however, as the pope who saved the city from Attila and his Huns, and later protected it when it was captured by Genseric and the Vandals. He died in Rome, Nov. 10, 461, and was canonised. He is known as Leo the Great.

Leo X. Pope from 1513 to 1521. A son of Lorenzo the Magnificent, of the Medici family, he was born in Rome, Dec. 11, 1475. He was made a cardinal and in 1513 was chosen pope. Thoroughly secular in his outlook, he was the typical pope of the Renaissance. He carried on several wars, but his chief interests were in his splendid court, where art and literature flourished. The Reformation began during his reign. He died Dec. 1, 1521.

Leo XIII. Pope from 1878 to 1903. He studied for the priesthood and in 1837 was ordained. He served Pope Pius IX. in a secular capacity, both in Italy and the Netherlands, and in 1846 he was appointed Archbishop of Perugia. In 1853, as Cardinal Pecci, he was one of the leading personages at the papal court. Very active, he was on good terms with most of the European countries, but would not recognise the Italian Government in Rome. He wrote poems and issued several encyclical letters, one on capital and labour. He died July 20, 1903.

Leo Name of six East Roman emperors. Leo I. called the Great reigned from 457 to 474. His grandson, Leo II. only reigned

for a few weeks. **Leo III.**, the greatest of the six, founded the Isaurian, or Syrian, dynasty when he began to reign in 717, and in 726 he forbade the worship of images.

Leominster Borough of Herefordshire, at the junction of three small rivers, 157 m. from London and 12 from Hereford, on the G.W. and L.M.S. Rlys. The magnificent church has a Norman nave. There is a trade in hops and other agricultural produce and beer is brewed. At one time Leominster was a centre of the wool trade with certain merchant guilds. Pop. (1931) 5707.

Leon Kingdom of Spain. It originated in the 10th century and was united for short periods with Aragon and Castile; it was finally united with Castile in 1230. It covered about 20,000 sq. m. in the N.W. of the country, and included, as well as the capital, Leon, the cities of Salamanca and Valladolid.

Leon City of Spain, 174 m. N.W. of Madrid, in mountainous country. Its cathedral is Gothic (founded 1199) and around the old city are the mediaeval walls and gates. Beyond is an industrial quarter. Pop. 18,000.

Leon City of Nicaragua, Central America. The town is a centre for trade in minerals, timber and coffee, which are exported from Corinto, 32 m. to the N. It dates from 1610 and was formerly the capital of the republic. Pop. 23,565.

Leonardo da Vinci Italian artist and scholar. Born in 1452 at Vinci, near Florence, he was the illegitimate son of a lawyer. About 1470 he worked in the studio of Verocchio and later he was in Egypt as an engineer. In 1482 he settled in Milan, at the magnificent court of the Sforza family. In 1500 he was architect and engineer to Caesar Borgia in Florence, and in 1506, invited by Louis XII., he went to France. He died near Amboise, May 2, 1519.

Leonardo was a poet and a scientist and his genius was expressed, not only in painting and sculpture, but also in engineering, architecture and mathematics, and he anticipated many discoveries of modern science, including the airship. The outstanding proofs of his artistic power are the "Mona Lisa," in the Louvre at Paris, "The Last Supper," now somewhat faded, at Milan, and "The Virgin of the Rocks," in the National Gallery, London. There are collections of his drawings in the British Museum and at Windsor Castle. He wrote a book on art.

Leoncavallo Ruggerio. Italian composer. Born in Naples in 1858, in his best known works, the operas *Pagliacci* (1892) and *Zaza* (1900), he used his sense of dramatic possibilities to full advantage. His other works, apart from *La Bohème*, were not very successful. He died Aug. 9, 1919.

Leonidas King of Sparta. He is remembered because he was the leader of the small band of Spartans who defended the Pass of Thermopylae against the Persians. He began to reign in 491 B.C. and was killed in the pass in 480, with all his followers, about 1000 in number.

Leonids Name given to the streams of meteors or shooting stars, which appear to originate in the constellation Leo. These meteors are small bodies moving in regular orbits, and when entering the earth's atmosphere at a high velocity become incandescent by the friction of the air. The leonids may be observed about November 14,

and at intervals of about 33 years showers of exceptional brilliancy occur when the earth crosses the orbit of a meteoric band.

Leopard Largest member of the cat family, *Felis pardus*, found in Africa and Asia, and notable for its spots. The fur is tawny and is valued for rugs. The average length is about 4 ft. The leopard preys by night on other animals, such as dogs, goats and monkeys and is very savage, although it will not usually attack man. It can climb trees. One variety is called the snow leopard, and there is a black leopard in Africa, now becoming rare. In India the true leopard is called the panther; the word leopard is reserved for the cheetah, which is a favourite quarry for sportsmen.

Leopardstown Racecourse of the Irish Free State. About 6 m. south of Dublin, it has ten meetings yearly.

Leopold Name of two Holy Roman emperors. **Leopold I.**, a son of Ferdinand III., was born June 9, 1640 and educated to be a priest. On the death of his elder brother, in 1654, he became emperor, and much of his reign was occupied in wars with France under Louis XIV. He had also to resist the advance of the Greeks and to deal with revolts in Hungary and Bohemia. To secure for his son, Charles, the throne of Spain he entered upon the War of the Spanish Succession, but died in the midst of it, May 5, 1705. His two sons, Joseph and Charles, succeeded him in turn.

Leopold II., a son of Francis I. and Maria Theresa, became Grand Duke of Tuscany in 1765. In 1790 he became emperor in succession to his brother, Joseph II., but he died soon afterwards, March 1, 1792. He was succeeded by his son, Francis II.

Leopold I. King of the Belgians. Born at Coburg, Dec. 16, 1790, a son of the Duke of Saxe-Coburg-Gotha, he became a soldier and fought against Napoleon. In 1816 he married Charlotte, only daughter of George IV., and was made Duke of Kendal. In 1831 he was chosen the first King of the Belgians and soon he married as his second wife a daughter of Louis Philippe. He reigned for 34 years and did a great deal to make Belgium a peaceful and prosperous country. He was on very friendly terms with Queen Victoria and took a continual interest in affairs in Britain. He died Dec. 10, 1865, leaving two sons, his successor Leopold, and Philip, Count of Flanders.

Leopold II. King of the Belgians. The elder son of Leopold I., he was born in Brussels, April 9, 1835, and, as Duke of Brabant, served in the army. He became king in 1865 and ruled, on the whole successfully, for 44 years. His management of the Congo Free State, which he owned until 1908, brought upon him a certain amount of odium. He died at Laeken, Dec. 17, 1909, and was succeeded by his nephew, Albert.

Leopoldsville Capital of the Belgian Congo. It is on the left bank of the Congo, near Stanley Pool, and was founded in 1882. It is a river port and an administrative centre. In 1923 it was made the capital of the state. Pop. 10,000.

Lepanto Harbour of Greece. It is on the N. of the Gulf of Corinth, sometimes called the Gulf of Lepanto, and has a certain amount of trade. The Turks took it from Venice in 1499.

The **Battle of Lepanto**, one of the great naval fights of the world, was fought Oct. 7, 1571. Spain, Venice and Genoa, united to send a fleet against the Turks of about 200 galleys, under Don John of Austria. It almost destroyed the Turkish fleet of 275 galleys, and put an end to the naval power of the sultan.

Lepidoptera Order of insects represented by the butterflies and moths. They are characterised by having four wings covered with minute coloured imbricating scales, a hairy body and sucking mouth parts. Their metamorphosis is complete, consisting of a larva or caterpillar, possessing spinning glands, a pupa or chrysalis, and an imago or perfect insect.

Lepidus Marcus Aemilius. Roman soldier and triumvir. He was born about 74 B.C. and in the war between Caesar and Pompey, supported Caesar who made him Dictator of Rome and Consul. In 43, after Caesar's murder, he was, with Mark Anthony and Octavian, one of the three who ruled the Roman World between them. His share was France and Spain, and later, Africa, but he quarrelled with Octavian and all his power was taken from him. He died 13 B.C.

Leprechaun In Irish folklore a small creature resembling an old man. He is usually harmful, but is beneficent to human beings who can withstand his trickery. He is credited with the power of discovering buried treasure.

Leprosy Chronic transmissible disease. It is due to the bacillus leprae (discovered in 1871) and was a terrible scourge in antiquity. In the Mosaic law there are many regulations about it, and in the Middle Ages in Europe and Asia the sufferers were segregated in leper houses, compelled to wear warning bells, and special windows were provided for them in churches. After the 15th century the disease gradually disappeared from Europe. It is still a scourge in Africa, Asia and the Pacific Islands and there are leper hospitals and asylums in India, Ceylon, South Africa and the Philippine Islands. It is estimated that there are over 2,000,000 lepers in the world.

There are two forms of leprosy. The nodular form shows itself in an irregular thickening of the skin and in the formation of nodes, or tubercles, which may develop into ulcers. In its nervous or anæsthetic form whitened patches appear on the skin, there is a decaying of sensation, the sufferer losing all sense of pain, heat, cold and touch and perhaps the extremities of the limbs fall away.

Many remedies have been tried for leprosy, including mercury, salvarsan and other drugs, as well as serum and vaccines, but the best results have been obtained by the injection of chaulmoogra oil.

Lerwick Chief town and seaport of the Shetland Islands. It is on the island of Mainland on Bressay Sound, with a good harbour for its fishing industry. Fort Charlotte is used by the Naval Reserve. A festival is held in the town every January.

Lesbos Greek island, lying near the coast of Turkey, N.E. of Smyrna, it is mountainous with fertile soil, olives, grain, fruit, etc., being produced. Sappho, Alceus, Theophrastus and other famous writers lived here. The modern name and that of the chief town is Mytilene. Area 618 sq. m. Pop. 161,557.

Leslie Burgh of Fife,shire, on the Leven, 12 m. from Cupar, on the L.N.E. Rly. The parish church may be the "kirk on

the green," in a ballad by James I. The green was at one time used for bull baiting and the bull stone is still seen. Linen and papermaking are the main industries. Leslie House is the seat of the Earl of Rothes. Pop. (1931) 2477.

Leslie David. Scottish soldier. A son of Sir Patrick Leslie, who had estates in Fife and was made Lord Lindores, he was born in 1601 and gained experience of war in the Swedish army. He won the Battle of Marston Moor and defeated Montrose at Philiphaugh in 1645. When the Scots took up the cause of Charles II. he commanded the army that was beaten by Cromwell at Dupbar in 1650. From 1651 to 1660 he was a prisoner in the Tower of London. In 1661 Leslie was made Lord Newark, a title held by his descendants until 1790. He died in 1682.

Leslie Shane. Irish writer. Born in 1885, he was educated at Eton and King's College, Cambridge, served in the Great War and soon began to write. His output, both in prose and verse, is considerable and includes *The Life of Cardinal Manning*, *Life of Sir Mark Sykes*, *The End of a Chapter*, an autobiography: *Mrs. Fitzherbert*, a play, and the novels, *The Oppidan*, *The Anglo-Catholic* and *The Cantab*. In 1932 he published *Studies in Sublime Failure*.

Lesnes Name of an abbey at Plumstead, Kent. It was founded as an Augustinian house in 1178 and lasted until the Reformation. The ruins and grounds are public property.

Lesseps Ferdinand de. French engineer. Born at Versailles, Nov. 19, 1805, he joined the consular service in 1825 and secured an appointment at Alexandria. He was afterwards in Spain as French ambassador. In Egypt, de Lesseps had seen the possibilities of a canal across the Isthmus of Suez and after 1849 he devoted his life to making it. He obtained the concession, formed the company and supervised the work until the opening of the canal in 1869. Afterwards he undertook to cut a canal across the Isthmus of Panama, but this was less successful. De Lesseps was ruined and discredited by the mismanagement associated with the scheme, was tried and sentenced to imprisonment but never served the sentence. He died Dec. 7, 1894. A cousin of the Empress Eugénie, he was made a viscount by Napoleon III.

Lessing Gotthold Ephraim. German author and critic. Born in Saxony, Jan. 22, 1729, the son of a Lutheran clergyman, he was educated at the Universities of Leipzig and Wittenberg. He wrote critical articles for the periodicals, and spent time in travel and in making friends with the thinkers of the age. In 1767 he was appointed playwright to the theatre at Hamburg and in 1770 Librarian to the Duke of Brunswick. He died at Brunswick, Feb. 15, 1781.

Lessing was a constructive thinker and his ideas on art and literature had great influence on Goethe and others. His greatest works are perhaps *Laokoon*, in which he gives his ideas on poetry and the plastic arts, and *Nathan the Wise*, a drama that has fine plea for religious toleration. His other works include *Miss Sara Sampson*, a tragedy, and *Minna von Barnhelm*, the first German comedy. He also wrote, to give them their English titles, *The Young Scholar*, *How the Ancients Depicted Death* and *The Education of the Human Race*. His ideas on the drama are in his *Hamburg Dramaturgy*.

Letchworth Urban district of Hertfordshire, 34 m. from London, just outside Hitchin, on the L.N.E. Rly. Around the Jacobean manor house the first English garden city was laid out in 1903. There are printing works and other industries. Pop. (1931) 14,454.

Lethal Chamber Term applied to a device for killing small animals painlessly. It consists of an air-tight chamber in which the animal is placed, a mixture of carbonic acid gas and chloroform vapour being introduced under pressure, causing death within a few seconds.

Lethbridge City of S. Alberta. It is on the Old Man River, 760 m. from Winnipeg and 136 m. S. of Calgary, on both the C.P. and C.N. Rlys. The industries are chiefly concerned with railway work, coal mining and the distribution of goods over an extensive farming area. Pop. 10,900.

Lethe In Greek legend a river of the underworld. Its waters were supposed to induce utter forgetfulness, so that when the dead drank of them they lost all memory of their past lives.

Leto In Greek legend the mother of the twins Apollo and Artemis. Jupiter became her lover and so Hera, in her jealousy, sent the serpent Python to chase her through the world. Poseidon made a refuge for her by putting a peg through the floating island of Delos. The Romans called her Latona.

Letterkenny Market town of Donegal, Irish Free State. It is on the Swilly, not far from Lough Swilly, on which it has a small port, Ballyraine. The chief building is the cathedral of the Roman Catholic Diocese of Raphoe. Pop. 2200.

Letter of Credit Document enabling a traveller to obtain money in foreign countries. The letters are issued by a banker at home to a banker abroad who is asked to pay a certain sum to the person named in the note.

Letter of Marque Document giving authority to the owner of a ship in time of war to attack merchantmen belonging to an enemy nation. The letters were issued by the naval authorities and the ships that received them, called privateers, were recognised in international law.

Letters Patent In Britain a privilege given by the sovereign in a document stamped with the Great Seal. It gives to a person or company the exclusive right of an invention. Peerages are also bestowed by letters patent. See **PREROGATIVE**.

Lettres de Cachet (or *lettres closes*). Blank orders of arrest issued by French kings, prior to the Revolution, to the governors of prisons. By this practice, abolished in 1789, it was only necessary to insert the name of an individual in such an order to effect his immediate incarceration.

Letts People of Indo-European stock. They inhabited Courland and Livonia when these districts were part of Russia, and are now the dominant people in the Republic of Latvia. They number about 2,000,000, chiefly Protestants, and there are colonies of them in the United States. See **LATVIA**.

Lettuce Hardy annual herb. Cultivated as a vegetable, it was introduced

into England from Flanders in the 16th century. The two chief varieties are the cos lettuce, which has an erect, oblong head and is generally crisp, and the cabbage lettuce which has longer leaves and is less compact in appearance.

In 1931 a duty was placed on lettuces imported into Great Britain.

Leu Unit of currency in Rumania. At one time worth a franc, its real value is now $\frac{1}{10}$. It is divided into 100 bani and the plural is lei.

Leucite Rock-forming mineral. It consists of a silicate of potassium and aluminium and is found chiefly in lavas in the vicinity of Vesuvius, Capo di Bove, near Rome, and in the basaltic rock of the Eifel. It occurs as crystals of white or grey colour, having anomalous optical properties, which vary according to the temperature.

Leuctra Village of Greece. Here, in 371 B.C., the Thebans, led by Epaminondas, defeated the Spartans, and ended the Spartan dominance in Greece.

Leuthen Village of Silesia, 10 m. from Dresden. In the battle fought here, Dec. 5, 1757, Frederick the Great utterly defeated an Austrian army, took 12,000 prisoners, and regained Silesia.

Lev Unit of currency of Bulgaria, worth nominally a franc, but really $\frac{1}{2}$ of a penny. It contains 100 stotinki. The plural is leva.

Levant Name used for the E. part of the Mediterranean Sea, i.e., the coastal regions of Asia Minor and Egypt. A person of Frankish race born in this area is known as a Levantine. A wind blowing from E. Spain is a Levanter.

The Levant Company was an English trading company that existed from 1592 to 1825. It was given by charter a monopoly of the trade with Constantinople and the neighbourhood. For a time it flourished, but later its trade was interfered with by pirates.

Levee Name given to the natural mud wall or embankment on the lower Mississippi. It is formed during floods when the river overflows and spreads over a level plain, depositing its sediment against the banks. These levees are strengthened artificially, but are often breached during excessive floods. Similar levees are formed on swift, muddy rivers, like the Hoang Ho in China.

Levee Reception held by a king for men only, in modern times in order that persons who have received official positions, or honours, may be presented to the king. Levees are held in the king's name by the Governors-General in India and the Dominions. The name is due to the fact that at one time the French kings received visitors during the process of rising from bed.

Level Instrument used in surveying for determining the amount of variation from the true level of a surface. It consists of a spirit level attached to a telescope. The spirit level is a cylindrical glass tube so filled with alcohol or water as to allow of the retention of a small air bubble. The complete instrument is mounted on a stand and regulated by a pivot and screws.

Levellers Political party that arose in England during the Civil War. Its members were chiefly soldiers in the army of Oliver Cromwell. Their leader was John Lilburne and their democratic ideas were set out in The Agreement of the People. In



UNILEVER HOUSE.—A view across Blackfriars Bridge of one of modern London's business headquarters. This beautiful building on the Thames Embankment was built in 1932 to house the administrative staff of the great Unilever Group and its many subsidiary companies.

1649, after the king's death, they mutinied, but the rising was quickly suppressed, and by 1660 they had disappeared.

Leven Loch or lake of Kinross-shire. It is 22 m. from Kdinburgh and covers nearly 6 sq. mi. On Castle Island, connected with the mainland by a causeway, the kings of Scotland had a palace, where Mary, Queen of Scots, was imprisoned in 1567-68. The lake was formerly much larger than it is to-day. It is noted for a special kind of trout.

Another Loch Leven is a sea loch between the counties of Argyll and Inverness. It is 12 m. long and is a branch of Loch Linnhe.

Leven Name of several rivers in Great Britain. One flows through some lochs between the counties of Argyll and Inverness to Loch Leven. It is 16 m. long and its waters are used for generating electric power at Kinlochleven. Another flows from Loch Lomond through Dumbartonshire to the Clyde. It is 7 m. long and forms the Vale of Leven, which is famous for its bleaching and dyeing yards. A third Leven flows from Loch Leven in Kinross-shire to Largo Bay. It is 16 m. long and is partly an artificial waterway. In England there are short rivers of this name in Lancashire and Yorkshire. One flows from Lake Windermere to Morecambe Bay.

Leven Burgh and watering place of Fifeshire, on the Firth of Forth, 11 m. from Kirkcaldy, on the L.N.E. Rly. There is a little shipping of coal and some manufactures, while it is becoming increasingly popular as a golfing centre. Pop. (1931) 7411.

Leven Earl of. Scottish title held with the earldom of Melville by the Fifeshire family of Leslie-Melville. Alexander Leslie, a soldier, fought in the Netherlands about 1580. Later he entered the Swedish Army and after the Thirty Years' War was made a field marshal. In 1638 he commanded the army raised by the Scots to fight Charles I. He won some successes and in 1641 was made Earl of Leven. Later he fought at Marston Moor. He died April 4, 1661.

Leven's title passed to his son and then to two daughters, and in 1682 it was given to David Melville, a great-grandson. In 1707 he became Earl of Melville and since then the two earldoms have been united. The earl's eldest son is called Lord Balgonie, this being the name of his seat in Fifeshire.

Levens Hall Residence in Westmorland. It is 3 m. from Milnthorpe and is one of the finest Tudor houses in the country. Built by Sir James Belkington it is noted for its exquisite panelling.

Lever District in Lancashire. Little **Lever** is an urban district just outside Bolton. It is a cotton manufacturing and coal mining centre. Pop. (1931) 4944. **Great Lever** is an adjoining area, but is not an urban district.

Lever Simple mechanical power. It consists of an inflexible bar supported at one point (fulcrum) with a weight or resistance at a second point. Power is applied at a third point to overcome the resistance, thus tending to cause the bar to rotate in opposite directions. There are three classes of levers: in the first the fulcrum is between the weight and power; in the second the weight lies between the other two, while in the third the power is between the weight and fulcrum.

Lever Charles. Irish writer. Born in Dublin, Aug. 31, 1806, he was educated at Trinity College there and became a doctor. He spent some time in Canada, after which he practised medicine in several Irish towns and then in Brussels and other places abroad. In 1858 he was made vice-consul at Spezia and in 1867 consul at Trieste. His serial, *Harry Lorrequer*, in the magazine of his university proved very successful and other novels followed, including *Charles O'Malley*, *Jack Hinton*, *Tom Burke of Ours*, *Rolland Cachel* and *Sir Brook Fosbrooke*. These are stories of social and military life in Ireland early in the 19th century. He also wrote, in another vein, *The Martins of Cro-Martin* and *The Dillons*. Lever died at Trieste, June 1, 1872.

Leverhulme Viscount. English title borne by the family of Lever. William Hesketh Lever was born in Bolton, Sept. 19, 1851, his father, James Lever, being a grocer there. He was educated at elementary schools and entered his father's business as a commercial traveller. In 1886 he began to manufacture soap at Wigan, and, aided by effective advertising, he made his Sunlight brand known all over the world. On the Mersey, a model town, Port Sunlight, was built, and the firm of Lever Bros. became the largest of its kind in the world. Many other concerns were amalgamated with it and before its founder died the combine had a capital of nearly £50,000,000. In 1929 there was a further big amalgamation with the Margarine Union and the firm of Unilever, Ltd., came into existence. A new building, Unilever House, Blackfriars, London, was opened in July, 1932, as the headquarters.

Lever had many and varied interests outside his business. He was a Nonconformist, but also a discriminating patron of the theatre. As a Liberal he sat in Parliament for the Wirral Division, 1906-10. As a social reformer he advocated a short working day and introduced a system of profit sharing. To foster the native industries of the Scottish Highlands he bought, in 1918, the island of Lewis, but this was less successful than his other ventures. His interests in Africa were extensive and there, too, he showed practical philanthropy. In 1911 Lever was made a baronet, in 1917 a baron and in 1922 a viscount. He died May 7, 1925, when his only son, William Hulme Lever, became the 2nd viscount.

Leverrier Urbain Jean Joseph. French astronomer. Born in Normandy, March 11, 1811, he was educated in Paris. He became a Professor of Astronomy and by his scientific writings became known and was elected to the Academy. His great work was the discovery of the planet Uranus, an honour he shared with John C. Adams. He was made professor in the University of Paris and from 1851-77 was director of the observatory there. He died Sept. 23, 1877.

Leveson-Gower Name of an English family represented by the Duke of Sutherland and Earl Granville. Sir Thomas Gower, a landowner in Yorkshire, was made a baronet in 1620. His descendant, who had taken the additional name of Leveson and owned land in Staffordshire, was made a baron in 1703. In 1746 John, the 2nd baron, was created Earl Gower and the 2nd earl was created Marquess of Stafford in 1786. The 2nd Marquess of Stafford married the Countess of Sutherland, a great heiress, and was made Duke of Sutherland.

The first Earl Granville was a younger son of the first Marquess of Stafford.

Levi Biblical character, the third son of Jacob and Leah and regarded as the ancestor of the tribe of the same name. Levi is also an alternative name for S. Matthew.

Leviathan Old Testament word denoting an aquatic monster, actual or emblematic. In Job xli. it is a crocodile; in Isaiah lxvii. a mythic serpent; and in Psalm civ. a generalised sea monster. Hence, anything immense, e.g., the authority of the sovereign in Hobbes's *Leviathan*, 1651.

Leviathan is the name of a liner built at Hamburg in 1914 for the Hamburg-Amerika line and named the *Vatirland*. At the outbreak of the Great War it was detained at New York until 1917, then renamed the *Leviathan* and used as a transport for American troops.

Levis Town and river port of Quebec, on the S. side of the St. Lawrence, opposite Quebec City. It is on the C.N.R. and Quebec Central Rlys. and steam ferries cross the river. There are docks for shipping, and some manufacturing industries. Pop. 10,500.

Levitation Term applied to the alleged phenomenon of raising heavy bodies in the air so that they remain suspended without mechanical means. The idea is referred to in many ancient writings. The Neoplatonist, Iamblichus, was said to have been levitated ten cubits from the ground during meditation. In modern times levitation has been claimed by spiritualistic mediums, such as Daniel Home.

Levites One of the twelve tribes of Israel. Its male members were set aside to assist the priests in the service of the temple. Unlike the other tribes, no definite piece of territory was allotted to them when the Promised Land was divided. Instead, they were given 48 cities and were maintained by tithes and alms from the others. In the wilderness they carried the tabernacle and later they acted as singers in the temple and prepared the sacrifices.

Leviticus Book of the Old Testament. It comprises the legal and ceremonial institutions regulating the sanctuary service of the Israelites administered by the tribe of Levi. It is divided into the laws of sacrifice (Ch. i.-vii.); priestly consecration (Ch. viii.-x.); purification (Ch. xi.-xv.); the day of atonement (Ch. xvi.); holiness (Ch. xvii.-xxvi.) and vows and tithes (Ch. xxvii.).

Levy Raising something, either money or men, usually by force in time of emergency. A levee en masse is a term used for calling out the fit male inhabitants of a country to resist an invader, or meet some other emergency. See CAPITAL LEVY.

Lewes Borough, market town and county town of Sussex, on the Ouse, 50 m. from London, on the S. Ry. The extensive remains of the Norman castle have belonged to the nation since 1920. Lewes is an agricultural centre and has a racecourse. In the suburb of Southover are some fine old houses, including one that belonged to Anne of Cleves, and the ruined priory of St. Pancras. From 1295 to 1885 Lewes was separately represented in Parliament and in the Middle Ages it was a centre of the wool trade. Pop. (1931) 10,785.

The Battle of Lewes was fought on May 14, 1264. An army under Henry III. and his son, Edward, marched against the baronial forces under Simon de Montfort. They met

near Lewes and at first the royalists were victorious. Later the scales were turned; Henry III. and Edward were made prisoners and Lewes was occupied.

Lewes George Henry. English writer. Born in London, April 18, 1817, he abandoned medicine for literature. His first-hand knowledge of the literature and philosophy of Germany was reflected in his writings. In 1863 Lewes founded *The Fortnightly Review*, which he edited for 15 years, and his best-known book is his *Life of Goethe*. For over 20 years Lewes lived with George Eliot, and her work was much influenced by his advice and criticism. He died Nov. 28, 1878. He is pictured in J. E. Buckrose's book, *Silhouette of Mary Ann*.

Lewis Largest island of the Outer Hebrides. Called Harris in the S., it is 60 m. long, covers 860 sq. m. and is 30 m. from the mainland. Stornoway is the chief town and port. The surface is chiefly peaty moorland with a number of sea lochs, and some hills in the S. rise to a height of 1750 ft. The coast is rugged. The industries are the growing of barley, oats and potatoes, the raising of sheep and cattle, fishing and weaving. There are relics of the Druids, and some stone circles at Calernish. Much of the island was bought in 1918-19 by the first Lord Leverhulme, but in 1924 his estates were sold. Pop. 32,000.

Lewis Sinclair. American novelist. He was born in Minnesota, Feb. 7, 1865, the son of a doctor, and was educated at Yale. He became a journalist and acted as editor for several publishers. In 1914, with the publication of *Our Mr. Wren*, he became known as a novelist and his popularity reached Britain with *Main Street*, 1920, and *Babbitt*, 1924. Other novels are *Free Air*, *Martin Arrowsmith*, *Elmer Gantry*, *The Man Who Knew Coolidge* and *Dodsworth*.

Lewis Gun Form of automatic gun. It is constructed on the principle of the machine gun, and can be fired from the shoulder like a rifle or by the use of a mount. Its automatic action is caused by the pressure of the explosion of gases and the action of a powerful spring, giving a forward and backward movement.

Lewisham Borough of the County of London. It is on the S. side of the river, extending to the border of Kent, and covers about 11 sq. m., with several stations on the S. Ry. It includes Catford, Lee, Forest Hill, Bellingham, Hither Green and parts of Blackheath, Downham, Brockley and Sydenham. The town hall was enlarged in 1931 and the S.E. Polytechnic opened in the same year. Some of the land belongs to the Earl of Dartmouth, whose eldest son is called Viscount Lewisham. Pop. (1931) 219,912.

Lexington Village of Massachusetts, 10 m. from Boston. Here, on April 19, 1775, the first battle in the War of Independence took place. A small British force was sent from Boston to Concord to seize some stores. It was attacked by a body of colonists, but saved by the arrival of reinforcements.

A town of Kentucky is named Lexington. This is 80 m. from Cincinnati and in it is the State University. Pop. 41,500.

Leyden Jar Electrical condenser invented by Cunaeus in 1746 at Leiden University. It consists of a glass jar coated inside and out with tinfoil, and having a brass rod ending in a knob

projecting from the inner coating. The jar is earthened, and a current from an electrical machine is passed into the knob producing a negative charge on the outer foil. To discharge the jar the two foils are connected by the ends of a conductor.

Leyland Market town and urban district of Lancashire, 5 m. from Preston on the L.M.S. Rly. The chief industry is the manufacture of cotton. Pop. (1931) 10,573.

Leys School Public school at Cambridge, founded in 1874, and controlled by Wesleyans. The buildings are modern, with accommodation for 360 boys.

Leyton County borough of Essex, 6 m. from London, on the L.N.E. and L.M.S. Rlys. There are some industries, and a technical institute. It was made a borough in 1926. The ground of the Essex Cricket Club is at Leyton. Pop. (1931) 128,317.

Leytonstone District of the county borough of Leyton (q.v.). It adjoins Wanstead Flats and Epping Forest.

Lèse Majesté Crime against the sovereign or the state. It was defined in Rome as any action against the republic, such as assisting its enemies; it also included illegal attempts to secure high office. It is now equivalent to treason.

Lhasa Capital of Tibet. It stands on a plateau, 12,000 ft. above sea level, and 390 m. from Darjeeling. Access to it is by road only. The sacred city of Lamalám, it is called the Forbidden City and until 1904 only one Englishman had visited it. The Potala is the palace of the Dalai Lama, and the centre of his faith. Standing on a hill, with five gilded pavilions, it is one of the most wonderful buildings in the world. The chief temple is the Jokhang, devoted to the worship of Buddha. The streets are narrow and dirty and the houses mean in appearance. Lhasa is much visited by pilgrims and round it is the Ling-kor or Pilgrims' Way. There are native manufactures and some trade. Pop. 20,000.

Near Lhasa are three great monasteries containing between them perhaps 20,000 inmates. They are known as Debung, Sera and Gaden. The monks or lamas in the two first named take an active part in political life. Each is a university as well as a monastery.

Li Chinese weight. It is a thousandth part of a Chinese ounce. Li is also the name of a measure of length, equal to one-third of an English mile.

Liana General name for long climbing and twining plants in tropical and subtropical forests. Usually woody and rooted in the ground, they attach themselves by aerial roots and tendrils to other vegetation, sometimes choking it, and forming festoons and monkey-ropes, occasionally utilised for bridges.

Liao-Tung Peninsula of Manchuria, also the name of the adjoining gulf. It was ceded to Japan in 1895, but was soon returned to China. In 1905 the southern part of the peninsula, leased to Russia, was transferred to Japan and since then has been ruled by that country. It contains Port Arthur and Dairen, which is the capital. Pop. 1,085,000, of whom 227,000 are Japanese.

Liao-Yang Town of Manchuria. It is on the railway and is a populous trading centre. Here, in Aug.-Sept., 1904, there was some fierce fighting between the Japanese and Russian armies. In the end the Russians retreated and the Japanese

entered Liao-Yang, but the victory was by no means decisive.

Lias Series of strata forming the base of the Jurassic System and occurring in England from Devon and Dorset across to Yorkshire. The beds consist of blue clays, sands, shales and limestone, and are divided into Lower, Middle and Upper Lias. The Cleveland ironstone of Yorkshire is a Liassic formation, and the Whitby beds y'd jet.

Libau City and seaport of Latvia. It is on the Baltic Sea, 150 m. from Riga. It has a good harbour and shipping is one of the main industries; there are some manufactures. In the neighbourhood are sulphur springs. Near is the Lake of Libau. Its Latvian name is Liepāja. Pop. 60,700.

Libel Writing or otherwise issuing anything that may damage a person's business or reputation. In English law it is also a libel to publish anything of a blasphemous, seditious or immoral nature.

The law of libel chiefly concerns newspapers and periodicals, although libels are published in other ways. In England the chief law on the subject is the legislation passed in 1843. A person who is libelled, or thinks he is libelled, can bring an action for damages. It is for the defence to prove that the statements made were true and were justified, but even then, if the plaintiff can prove that he has suffered loss by them, he may obtain damages at the discretion of the jury.

If the characters of public persons are attacked, the offender can be prosecuted for a criminal libel. Statements made in both Houses of Parliament and in the courts of law are, however, privileged. See SLANDER.

Liberal In politics one who is in favour of greater political liberty. As such the word has been taken by political parties, for example, the National Liberals in Germany.

In England the Liberal party developed from the Whigs and took the name early in the 19th century. In the 50 years that followed the Reform Bill of 1832 it was on the whole the dominant party in the country and was responsible for many social and political reforms. Its leaders were Earl Grey, Earl Russell, Lord Palmerston and above all, W. E. Gladstone.

In 1885 the party was divided over the question of Home Rule for Ireland and was out of office, except during 1892-95, until 1905. It then had a spell of office lasting 10 years and covering the early days of the Great War, while it had a share in the Coalitions which followed. When the war ended the Liberal party was weak and divided, but its work was largely done; many of the reforms on its programme had been carried out, while others, such as the disestablishment of the Church of England, no longer aroused enthusiasm. In a measure its decay was hastened by the growth of the Labour party which, in 1922, supplanted it as the official opposition.

Only a few Liberals were returned to the House of Commons in succeeding elections. In 1931 there were 72, split into three groups, two of which, led respectively by Sir John Simon and Sir Herbert Samuel, were represented in the National Government formed by Ramsay MacDonald, while the third, under Mr. Lloyd George, stood out on the issue of Free Trade.

The Liberal Central Association, which is maintained by a number of Liberal associations

throughout the country, has offices at 21 Abingdon Street, London, S.W. Associated with it is the **National Liberal Federation** which holds a conference every year.

Liberal Unionist Political party now merged in the Unionist or Conservative one. It was founded in 1885, when some members of the Liberal party, who disapproved of Gladstone's plan to give Home Rule to Ireland, left him and founded an organisation of their own. They were led by the Duke of Devonshire, then Marquess of Hartington and Joseph Chamberlain, and included John Bright. Later the Liberal Unionist and Conservative organisations in England were merged in one, but in Scotland the Liberal Unionists retain a separate association. See CONSERVATIVE.

Liberator One who liberates or frees. The epithet is given to certain men who from time to time have distinguished themselves as leading their countrymen to freedom, such as Simon Bolivar, after he had taken Caracas from the Spaniards in 1813. It was also the title of a paper published in America from 1831-65 protesting against slavery and edited by W. L. Garrison.

Liberator Name of a building society. It was founded with allied companies by Jabez S. Balfour in 1868, and for a time was a very prosperous undertaking, but in 1892 the group failed with a liability of £8,000,000. Balfour was arrested and imprisoned. There was a good deal of distress and a fund was raised for the victims. The assets, one being the Hotel Cecil, were carefully husbanded, and during the 30 years that followed the collapse something was repaid to the depositors. See BALFOUR, J. S.

Liberia Republic of Africa. It is on the west coast between Sierra Leone and the French possessions on the Ivory coast. It covers 43,000 sq. m. and has a coastline of 350 m. Monrovia is the capital and the chief seaport. The main products are rubber and palm oil. Minerals are worked to a small extent. The country has no railways, but there are motor roads.

Liberia was formed to provide a home for freed slaves from America. The Republic dates from 1847 and is governed by a president and a council of ministers with a parliament of two houses. English is the official language. Liberia is a member of the League of Nations. The inhabitants are nearly all negroes, and Protestants. Pop. 2,500,000.

Liberty Sir Arthur Lasenby. English merchant. He was born at Chesham, Aug. 13, 1843, the son of a lace manufacturer. In 1875 he opened a shop in London, Liberty's, which specialised in artistic fabrics and gained a great reputation for the beauty and novelty of its wares. Knighted in 1913, he died May 11, 1917.

Libra Weight and monetary unit. The Latin word denoted the stercyard, its fixed-weight counterpoise, a standard copper 12 lb. bar of 12 ounces, a copper coin and a gold monetary unit. It still designates a Spanish, Portuguese and S. American weight, and a Peruvian gold coin. Britain's pound is written lb. for weight, £ for value.

Libra Seventh zodiacal constellation, represented by the Roman scale-beam, indicating equal nights and days when the sun's ecliptic crosses the equator at the autumnal equinox.

Library Collection of books; also the room or building which contains them. A library may be a few hundred books in a private house or the 3,000,000 in the British Museum.

Most civilised countries have national libraries. Notable examples are the British Museum in London and the Bibliothèque Nationale in Paris. Scotland and Wales have each a national library, the Scottish one including the Advocates' Library. At Oxford is the Bodleian and at Cambridge the University library. These libraries are entitled to a copy of every book published in the country.

Some libraries are famous for the quality rather than the quantity of their books. One such is the John Rylands Library in Manchester which includes the collection bought from Earl Spencer at Althorpe. There are valuable collections of books and manuscripts in some cathedral and college libraries and in some of the great houses. The legal, medical and other societies have libraries, but each of these is mainly confined to its own subject.

One of the most valuable libraries in the world is in the Vatican, others are in Rome and other continental cities.

The treasures of these libraries are mainly reserved for students, but for the general public there are lending libraries, usually controlled by a city or town council and often supported from the rates. Many were erected with money provided by Andrew Carnegie, whose money has been used to provide village libraries in various parts of the country. Other lending libraries, called circulating libraries, are privately collected, and those who use them pay a subscription for the privilege. In 1932 the Carnegie Trust decided to contribute towards a new building in London for the Central Library for students.

In most cities and towns there is also a reference library where books can be consulted, but not taken away. Manchester has a very good one, and in 1932 one was opened in Norwich. The library of the Patent Office in London belongs to this class.

Special libraries include libraries for the blind. Each government department has a library and they are found in some business houses. In 1928 £1,791,000 from the rates was spent on libraries in England and Wales, and £200,500 in Scotland.

LIBRARIANSHIP AS A CAREER.—This offers a congenial occupation to many men and women, and is well paid in its higher branches. Junior assistants begin at £60-£80 a year, but a senior assistant should receive about £300, and the chief librarian of a public library system anything up to £1000—though about £400-£500 is the average salary.

The recognised professional qualifications are Fellowship and Associateship of the Library Association which are granted upon passing the requisite examinations. Those employed in libraries usually take the Correspondence Courses conducted by the Library Association (25-27 Bedford Square, London, W.C.1). Another method is to attend the School of Librarianship at the University of London (Gower Street, W.C.1), where a two years' course leads to a Diploma which is accepted as a qualification for Fellowship. Graduates can complete this course in one year. Lectures are also given in the evenings for the convenience of those engaged during the day. Courses and Summer Schools are held in connection with other universities.

Libya Italian possession in Africa. The word, sometimes spelt Lybia, was used by the Greeks for the whole continent, but it is now confined to a district in the north. This lies along the north coast from Egypt to Tunis, and is divided into the two districts of Tripolitania and Cyrenaica.

Libya became a Turkish possession in the 16th century and so it remained until 1911. In that year Italy invaded and annexed it, this annexation being recognised by the Treaty of Ouchy, signed in Oct. 1912. In 1928 the area of the country was greatly extended by the inclusion therein of various oases. It has a coastline of about 1100 m. and covers altogether over 800,000 sq. m.

The Libyan desert is the name of the part of the Sahara between Egypt, the Sudan and Tripoli. It has many oases. See TRIPOLI.

Licence Permission by the state to enjoy a certain privilege. To-day it is the usual way by which the state controls trades and privileges, and is also a source of revenue. The word has a special connection with the sale of intoxicating liquors, which must be only by licence. Public houses are known as licensed premises and the proprietor is a licensed victualler. The sale of drink is sometimes called the licensing trade.

Licences are necessary to enable one to keep a dog, drive a motor car, sell tobacco, possess a wireless receiving set, act as a moneylender, auctioneer or pawnbroker and use a gun. Others who need licences are dealers in patent medicines, keepers of men servants, users of armorial bearings and hawkers. Owners of motor cars and private carriages must take out a licence. The issuing of licences, except marriage licences (see MARRIAGE), is controlled by the Board of Customs and Excise. Most of them can be obtained through a post office and the work of seeing that they are taken out falls to the police. Licences for the sale of intoxicating liquors are granted by the magistrates. See LIQUOR CONTROL.

Lichen Compound plant organism consisting of two symbiotic partners, a fungus and an alga. The fungal element belongs, in nearly every instance, to the Ascomycete group and is usually responsible for the external form of the lichen. The green algal cells become enveloped in the felted mass of fungal threads, the two plants mutually benefiting by their association. Lichens form incrustations, foliaceous or branching masses on rocks, tree-trunks, etc., examples being the Beard Moss and Iceland Moss.

Lichen Form of skin disease commonly known as "dry itch." It consists of an eruption of a cluster of small red pimples on an inflamed area, becoming later a group of dry scaly points accompanied by severe itching and a burning sensation. It occurs usually in persons of nervous or sanguine temperament and may be induced by irritants from certain occupations.

Lichfield City, borough and market town of Staffordshire. It is 117 m. from London, on the L.M.S. Rly. It is a centre for the sale of agricultural produce and has breweries and other industries. The city has one of the most beautiful cathedrals in England, also associations with Johnson. S. John's Hospital dates from 1495. The Three Crowns is an old inn. The war memorial is a garden of remembrance. The house in which Johnson was born is now a museum for his relics and there is a statue of him.

A bishopric was founded at Lichfield about 670 and from 786 to 803 its holder was an archbishop. At one time the city had a castle and until 1885 it sent members to Parliament. Pop. (1931) 8,508.

The title of Earl of Lichfield has been held by the family of Anson since 1831. The earl's seat is Shugborough Hall, Stafford, and his eldest son is called Viscount Anson.

Lichnowsky Karl Marx. German prince and diplomat.

Born March 8, 1860, he entered the German Foreign Office in 1884, retiring in 1904. In 1912 he was appointed ambassador to Great Britain, and later was much criticised for his failure to preserve diplomatic relations between Great Britain and Germany in 1914. In 1917 he was exiled on the unauthorised publication of his *Meine Londoner Mission*, a criticism of German policy in the Sarajevo incident of 1914. He died Feb. 27, 1928.

Licinius Roman emperor. He was a peasant who became a soldier and attracted the notice of the Emperor Galerius, who put him in charge of a part of his empire. In 313 he became sole ruler of the eastern part of the empire, the remainder being under Constantine the Great. Rivalry arose and in 324 war broke out between them. Victory fell to Constantine, and Licinius was made a prisoner and later put to death.

Lick Observatory in California. It is on Mt. Hamilton, near the coast of the Pacific, and is controlled by the University of California. In order to secure the least possible amount of interference it is surrounded by a belt of untouched land. The observatory possesses powerful telescopes and ranks as one of the greatest in the world. It was founded by James Lick of San Francisco and was opened in 1885.

Lickey Hills Low range of hills in Worcestershire. They lie between Birmingham and Droitwich and about 500 acres belong to the city of Birmingham.

Lictor Official in ancient Rome. One or more lictors walked in front of the more important magistrates. They carried a bundle of rods, called *fasces*, and an axe, as symbols of the magistrates' power.

Liddell Henry George. English scholar. Born Feb. 6, 1811, the son of a clergyman, he became tutor and lecturer at Christ Church, and in 1846 was appointed headmaster of Westminster School. In 1855 he returned to Oxford as Dean of Christ Church and there he stayed until his death, Jan. 18, 1898. One of his daughters was the original of *Alice in Wonderland*.

Liddell was a prominent figure in Oxford and his name is perpetuated by the great Greek *Lexicon* prepared by himself and Hobert Scott. This appeared first in 1843 and the latest of several new editions in 1930.

Liddesdale District of Scotland. It is the valley of the Liddel Water, a tributary of the Esk. There are border towers in the dale, including Hermitage Castle, and the scenery is most picturesque. The Armstrongs and the Elliots, famous border families, lived here.

Liddon Henry Parry. English preacher. Born at North Stoneham in Hampshire, Aug. 20, 1829, he was ordained in the Church of England, became Vice-Principal of the Theological College at Cuddesdon and in 1859 Vice-Principal of S. Edmund Hall, Oxford. For the next eleven years he was one

of the leading figures in Oxford, exercising by his sermons and lectures great influence over the undergraduates. In 1870 he was appointed Canon of St. Paul's, a position he held until his death at Weston-super-Mare, Sept. 9, 1890.

Liddon was prominent as a follower of Pusey and a leader of the High Church movement, but he is best known as a gifted preacher. His Lenten sermons in London, long though they were, were attended by vast crowds.

Lido Island and pleasure resort of Italy. It is 8 m. long and is one of the islands that separate the lagoon on which Venice stands from the sea. In the 20th century it became a fashionable resort for English people. The social centre of the island is Santa Elisabetta. At the north of the island is a fortress.

Liebig Justus. German chemist. He was born at Darmstadt, May 12, 1803, and was educated at Bonn, Erlangen and Paris. When only 21 years old he was appointed Professor of Chemistry at Giessen. In 1845 he was made a baron, and in 1852 he moved to Munich, where he was Professor of Chemistry until his death, April 18, 1873.

Perhaps the leading chemist of his day, Liebig discovered various chemical substances, notably chloral and chloroform, and wrote much on chemistry. He also improved the apparatus of the chemist and showed how the soil could be made more productive by the use of fertilisers. He invented the extract of meat which is called after him.

Liechtenstein Small principality of Europe. It is on the east side of the Rhine, between Austria and Switzerland, not far from Lake Constance. It covers 65 sq. m. Vaduz is the capital. Agriculture, notably cattle rearing, is the chief occupation of the people. The land is governed by a prince and a diet of 16 members. Before the Great War it was closely associated with Austria, but now its coinage is Swiss and Switzerland controls its customs, posts and telegraphs. The principality was formed in 1719 and from 1815 to 1866 was part of the German Confederation. Pop. 10,700.

Liège City of Belgium. It is on the Meuse, 55 m. from Brussels. The buildings include the cathedral, the palais de justice and the museum. There is a university and a broadcasting station (242.7 M.). The city is a centre of the iron and steel industry; others include the making of motor cars and various engineering products. On Aug. 5, 1914, the Germans attacked Liège. The last forts fell on the 16th and the city remained in German hands until Nov., 1918. Pop. 169,500.

Lien Word used in English law. It describes the right a creditor has to retain property until his debt is paid. Thus, if a man has an overdraft, the bank can take a lien on some shares which he possesses. An innkeeper has a lien on the goods of his guest until the bill is paid, and a carrier on the goods which he carries.

Lieutenant Literally, one who takes the place of another. In the British navy a lieutenant is between a sub-lieutenant, or mate, and Lieutenant-commander; in the army he is between a second lieutenant and captain; in the air force a flight-lieutenant is between a flying officer or observer, and a squadron leader. In the army the Lieutenant wears a badge of two stars on his sleeve, in the navy he wears two stripes and a curl of gold braid.

Lieutenant-Colonel Rank in the British army. Between colonel and major. A lieutenant-colonel commands a battalion of infantry, a regiment of cavalry or a brigade of artillery. The badge of rank is a crown and star.

Lieutenant-Commander Rank in the British navy. He ranks between commander and Lieutenant. The badge of rank consists of three stripes and a curl. The equivalent rank in the army is a major and in the air force squadron leader. There are lieutenant-commanders in the various branches of naval work—engineer, paymaster, etc.

Lieutenant-General Rank in the army. He ranks below a general and above a major-general, and his usual command is an army corps. The badge of his rank is a crown with a sword and baton crossed beneath it.

Life State of activity peculiar to animals and plants in which an organism acts upon its environment which in turn reacts upon it. The physical basis of life is protoplasm, a complex mixture of compounds of carbon, hydrogen, oxygen and nitrogen, with usually some sulphur and phosphorus.

These compounds consist of proteins, fats, carbohydrates, mineral salts and about 75 per cent. of water. Protoplasm is an unstable structure as it is subject to constant physical and chemical changes (metabolism) by which the organism grows. These metabolic processes comprise those that build up (anabolism) and those that break down the protoplasm (katabolism). The living activities are expressed in movement, nutrition, growth, sensation and reproduction, and in all these activities a supply of energy is required, set free, in most cases, by oxidation of the protoplasm, the intake and use of oxygen being known as respiration. In the death of an organism its unity is lost, and the protoplasm breaks up to form new compounds.

Lifeboat Special type of boat designed for saving life at sea. They are designed for stability and buoyancy, and have special valves for discharging the excessive inflow of water. They are operated from the shore or carried on ships, and some have collapsible sides. Shore lifeboats are built of wood, usually with a double skin of mahogany, and are propelled by oars and sails, although many motor driven lifeboats are now in use.

The boats are maintained by the Royal National Lifeboat Institution at 42 Grosvenor Gardens, London, S.W.1. It maintains over 100 lifeboats, and has been responsible for saving over 62,000 lives. Its annual income amounts to over £300,000.

Life Guards Regiment of the British army. Part of the household cavalry, it dates from the time of Charles II. and still forms the sovereign's escort on important occasions. For long there were two regiments of Life Guards, but after the Great War they were amalgamated. The Life Guards have a fine record of service which includes some hard fighting during the Great War. The regiment ranks as the senior one in the army.

Liffey River of Ireland, 50 m. long. It rises in the mountains of Wicklow and flows through counties Kildare and Dublin to the sea. The city of Dublin stands on it.

Lifford County town of Donegal, Irish Free State. It is on the Foyle,

opposite Strabane, 15 m. from Londonderry. Pop. 400.

The title of Viscount Lifford has been borne by the family of Hewitt since 1781. The first viscount was Sir James Hewitt, Lord Chancellor of Ireland.

Ligament In anatomy the membrane that connects the movable bones. Especially in the knee, the ligament is very susceptible to strain. See KNEE JOINT.

Ligature Term applied to a thread of silk, catgut or other material used for tying up blood-vessels in surgical operations. Ligatures are made in different thicknesses and are sterilised usually with carbolic acid.

In musical notation, a ligature is a tie or line binding together a group of notes requiring a certain length of sound, or when the notes are of different pitch, intended to be sung with one breath or played as a continuous phrase.

Light Form of energy having the properties of vibration or wave motion and traversing space. It causes the sensation of sight, by its action upon the eye. The speed at which light travels is about 186,000 m. per second, so that the light of the sun takes nearly 8½ minutes to reach the earth.

Newton first showed that a beam of sunlight, when transmitted through a prism, is broken up into a coloured band or spectrum, the colours being red, orange, yellow, green, blue, indigo and violet. It is now known that beyond the red end of the spectrum are invisible heat or infra-red rays, and similarly beyond the violet end, other invisible ultra-violet rays, having a chemical or actinic action. The differences in wave-length of the rays are associated with the differences in colour, and in the visible spectrum the longest wave lengths are at the red end, while the shortest are at the violet end. Light, heat and wireless waves are electro-magnetic vibrations of the same form, but differing widely in wave-length.

For measuring the distance of the stars from the earth and for other measurements of the universe, a light year is taken as the unit. This is the distance travelled by light in a year and is calculated at 6 million million miles (6,000,000,000,000). See RELATIVITY.

Light Brigade Brigade of light cavalry. It refers particularly to the brigade of light cavalry that charged at Balaklava in 1854. See BALAKLAVA.

Lighter Large open flat-bottomed boat used in loading and unloading ships in port, and for carrying goods for short distances. They are generally towed but in some cases are steam propelled, and are used instead of barges on English inland waters.

The men in charge of lighters are known as lightermen. On the Thames they require a licence, which can be obtained from the Watermen's and Lightermen's Company, a very old organisation.

Lightfoot Joseph Barber, English theologian. Born in Liverpool, April 13, 1823, he was educated at Trinity College, Cambridge, where he was senior classic, and fellow and tutor of Trinity College. In 1861 he was appointed Hulsean Professor of Divinity and in 1875 Lady Margaret Professor at Cambridge. In 1871 he was made Canon of St. Paul's, London, and in 1879 Bishop of Durham. He remained at Durham until his death, Dec. 21, 1889. Lightfoot was chiefly

known as an authority on the New Testament, which he helped to revise.

Lighthouse Building provided with powerful illumination to guide navigation of ships in dangerous waters. Lighthouses are built either on the coast or on a rock, and usually take the form of a tower or high building surmounted by a "lantern." The Eddystone lighthouse is a well-known example built on an isolated rock, while the tower on Beachy Head is built upon a high cliff. Usually the illuminant is a mixture of petroleum vapour and air burnt in a form of incandescent mantle, the beam of light being intensified by lenses and mirrors.

In England the maintenance of lighthouses is the business of Trinity House, which obtains an income by levying light dues on shipping. For Scotland there are the Commissioners of Northern Lighthouses in Edinburgh and the Clyde Lighthouses Trust in Glasgow. Other countries have similar organisations.

Lighting For purposes of illumination oil lamps were an early device. In some olive oil was used with a floating wick, in others the wick was confined in a nozzle. Candles of various kinds have been, and still are, used for illumination, the earliest form being the rushlight, where the wick consisted of a peeled rush stem.

With the invention of the Argand burner in 1783 and the introduction of petroleum, greater efficiency in lamps was obtained. From the beginning of the 19th century coal gas became more and more used as an illuminant, the invention of the Welsbach incandescent mantle in 1886 giving a marked increase in lighting power. A further advance came with the use of electric arc lamps and the introduction of the incandescent electric bulb by Edison and Swan in 1879 and 1880. See ELECTRICITY; GAS.

Lightning Flash due to an electrical discharge between two clouds or between the clouds and the earth. Lightning may originate either from a positive charge within the cloud and pass downward in a branching path, or it may originate as a positive charge in the earth and branch upward to the cloud. Sheet lightning is a reflection of a distant discharge or of lightning below the horizon. Ball lightning is a slower moving globular form which explodes violently in contact with an object.

Lightning Conductor Appliance attached to buildings for discharging gradually the electric current of lightning into the earth. It consists usually of a copper terminal fixed on the highest part of the building and connected to solid copper tape fixed to the walls by copper staples or gun-metal holdfasts. The tape passes downwards to an earth plate of copper buried in charcoal in damp soil. Tall chimney shafts often have a band near the top bearing four terminal rods.

Lightship Special type of vessel used for giving warning of sandbanks and other dangers to navigation on the coast. The vessel is moored in shoal water and bears at its masthead a form of lantern as a warning signal. Most of these vessels are manned by a crew, but some are entirely automatic in action. Four lightships are placed to mark the Goodwin Sands off the Kentish coast and another well-known lightship is moored off Spithead.

Lignin Essential constituent of woody tissue. Lignin, also known as ligno-cellulose, is a complex organic compound permeating the cell walls and recognised by certain reactions.

Lignite Immature form of coal sometimes known as brown coal, and frequently showing traces of the original wood structure. It is an important fuel in many European countries, especially Germany, where it occurs in beds of considerable thickness. It is also found in Australia. It contains over 45 per cent. of volatile matter, and is used as fuel in the form of briquettes.

Lignum Vitae. Tropical American evergreen tree of the *Guaiacum* order (*G. officinale*). It is called "wood of life," because of its medicinal repute. The tough, unsplittable, greenish-black heartwood contains one-fourth resin, used in chronic rheumatism and acute tonsillitis; turners employ it for pestles, pulley-blocks and rulers. An E. Australian acacia furnishes hardwood called hickory *Lignum vitae*.

Ligny Village of Belgium. It is famous because here, during the Waterloo campaign, Napoleon defeated the Prussian army on June 16, 1815. See WATERLOO.

Liguria Name of a division of Italy in ancient times. In the north of the country adjacent to the French frontier it included Genoa. The name is borne by a modern division of Italy, a range of the Alps and of the Apennines, and an arm of the Mediterranean. The republic of Genoa, when rearranged by Napoleon in 1797, was called the Ligurian republic. It lasted until 1805.

Li Hung Chang Chinese politician. Born Feb. 16, 1823, he came to the front as a soldier. Later he turned to politics and had a considerable share in introducing western ideas into China. In 1875, the ruler being a child, he became practically head of the government and remained so until his death, Nov. 7, 1901.

Lilac Genus of hardy deciduous shrubs of the olive order, natives of S.E. Europe and temperate Asia (*Syringa*). They bear large pyramidal clusters of small flowers, usually fragrant, bluish-purple, reddish or white. The commonly cultivated *S. vulgaris*, 20 ft. high, was introduced into Tudor England. The smaller Persian, Chinese and Rouen lilacs, 4-7 ft., are distinct or hybridised; *S. josikaea*, from Transylvania, is scentless.

Lilith Female night-monster who passed from Persian into Jewish folklore. Mentioned in Is. xxxiv, R.V. margin, the A.V. name is screech-owl. Rabbinical literature made her Adam's wife before Eve's creation; she became thereafter a nocturnal, wandering demon, especially dangerous to children and women in childbirth, and involving the wearing of protective amulets.

Lille City of France. It is on the River Deule, 155 m. from Paris, and is well served by railways and canals. The buildings are mainly modern, although on the Grande Place are the Grande Garde and the Bourse, both ancient. The city has a university with fine buildings and a Pasteur Institute. Lille is a great manufacturing centre, not only for iron and steel goods, but for textiles, which are produced in great quantities here. It has a broadcasting station (265.4 M., 1.3 kW.).

Owing to its position Lille has often been besieged and it has changed hands several

times. It was strongly defended when the Great War broke out, but the forts were soon reduced by the German guns. On Oct. 12, 1914, the garrison surrendered and it remained in German hands until Oct., 1918. Pop. (1931) 201,568.

Lilliput Fabulous island in the Indian Ocean on which Gulliver was wrecked, in Swift's *Gulliver's Travels*, 1726. Its inhabitants did not exceed his finger in height. Garrick personally trained children to act in a play of the name, 1756. Hence anything dwarfish is called lilliputian.

Lillywhite **Frederic William.** English cricketer. Born in Sussex, June 13, 1792, he was a bricklayer who soon won a local reputation as a cricketer. This spread, chiefly owing to his success as a bowler, and he went to London where, in 1844, he was engaged by the M.C.C. He remained a professional in the service of that club until his death, Aug. 21, 1854.

Lily Typical genus of herbs with scaly bulbs of the lily order (*Lilium*). Natives of N. temperate regions, the flowers comprise six free perianth-segments, the anthers being on slender filaments. Many garden forms are trumpet-shaped, sometimes with reflexed or rolled-back segments. One of the oldest in cultivation is the Mediterranean white Madonna lily; the E. Asian dark-spotted, orange-red, tiger lily is either single or double flowered; the Japanese yellow-banded white *L. auratum* may be 6-10 in. across. The S. European purple martagon or turk's-cap and the Bermuda white Easter lily are other favourites. Other genera contain the African, Guernsey, Lent, S. Bernard's and water-lilies. See DAFFODIL.

Lily of the Valley (*Convallaria majalis*). Perennial plant of the order *Lilicaceae*. The spikes of white bell-like flowers spring on erect stems from oval green leaves and have a delicious fragrance.

Lima Capital of Peru. It is 7 m. from the coast of the Pacific Ocean, where is its port Callao and is a railway centre. It is laid out on modern lines and a feature is the large bull ring. There is a university. Lima has some manufactures and is the trading centre of the republic. It has large foreign elements in its population. Pop. (1928) 265,000.

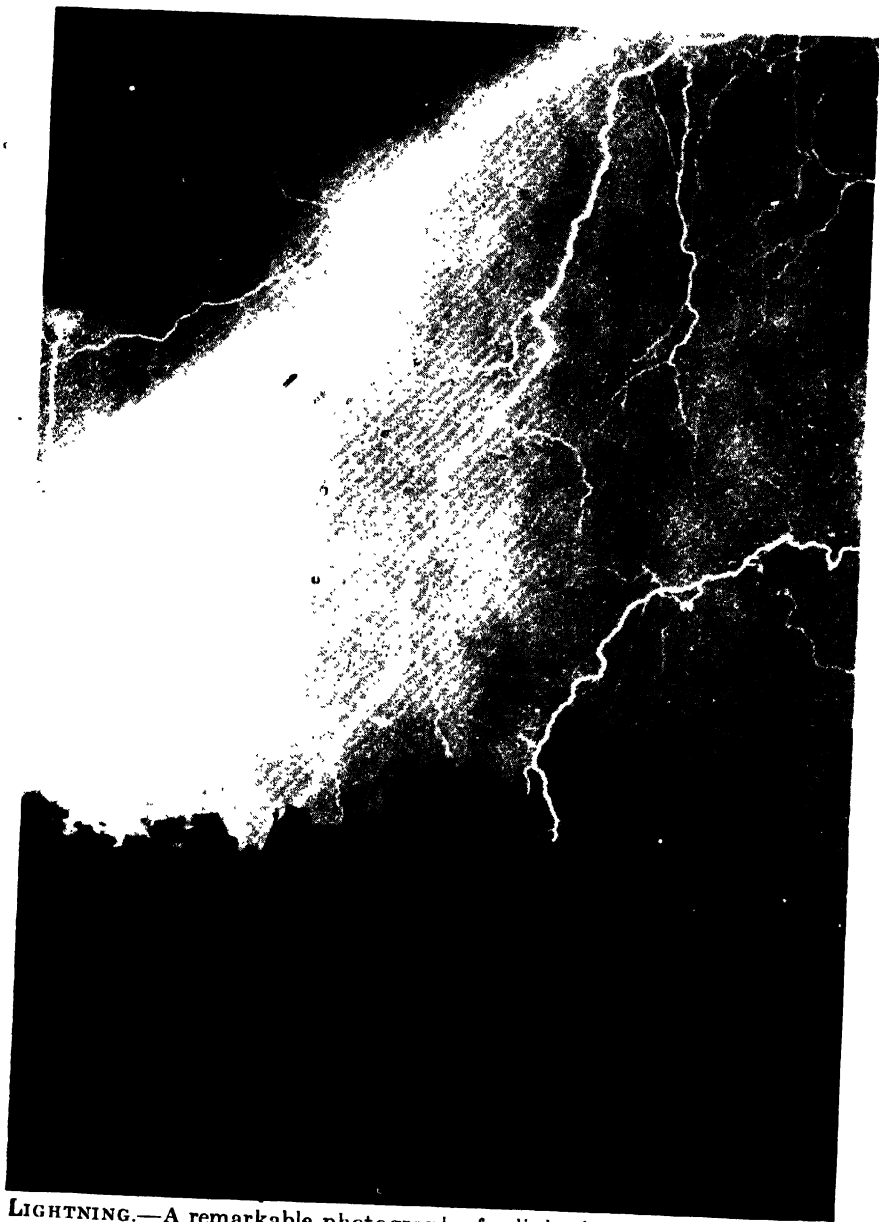
Limasol Seaport of Cyprus. It is on the south coast and the chief industry is exporting the produce of the island. Pop. 13,300.

Limburg South-eastern province of Holland, area 847 sq. m., pop. 521,660, capital Maastricht, and north-eastern province of Belgium, area 930 sq. m., pop. 300,455, capital Hasselt. These two, with a small area of the Liège province, formerly constituted an independent duchy.

There is also a town named Limburg in Liège province, where Limburger cheese was originally made.

Limbus In mediaeval scholasticism, a supposed borderland occupied by departed souls before the final judgment. Also called limbo it included a *limbus patrum*, Abraham's bosom in Luke xvi., the prison to whose spirits Christ preached in Hades (1 Peter iii.), and a *limbus infantium* for unbaptised children. Dante's Inferno makes it the uppermost of hell's nine circles.

Lime Oxide of calcium, or quicklime. It is a white substance obtained by heating to redness limestone or marble. It readily



LIGHTNING.—A remarkable photograph of a lightning flash taken during a summer thunderstorm in England, showing the sky torn by violent electrical discharges from the clouds.

[*Topical*

absorbs water, evolving heat and finally crumbles to a soft bulky powder known as slaked lime or calcium hydroxide, which is soluble in water, forming a solution known as limewater. Lime is used in the making of mortar and cements, as a soil dressing in agriculture, also as a water softener, and in many important manufactures.

Lime Typical genus of timber trees of the lime order (*Tiliac.*), natives of N. temperate regions. The leaves are heart-shaped, oblique and saw-toothed; the clustered, sweet-scented, nectarated yellowish-white flowers attract bees. Small-leaved and taller large-leaved subspecies grow wild in Britain. The common European lime or linden, *T. europaea*, introduced into Tudor England, furnishes whitewood useful for toys, kitchen utensils and carvings; the inner bark or bast makes Russian matting. The N. American basswood, or American lime, 80-100 ft. high, is more important.

Lime Fruit Yellow, round or oval, thin-rinded fruit of two cultivated varieties of the citron. It originated in Asia. Sour limes, 1½ in. across, regarded as *Citrus medica*, var. *acida*, yield commercial lime-juice, citric acid, and an essential oil. West Indian being preferred. Sweet limes, regarded as *C. medica*, var. *limetta*, are esteemed in India.

Limehouse District of London. It is on the north side of the River Thames in the borough of Stepney. It is largely inhabited by sailors and there are several docks in the district. It has also a large Chinese population. There are several homes and institutes for seamen. Limehouse Cut connects the Rivers Thames and Lee.

Lime Juice Liquid squeezed from the fruit of the sour lime. It is used as a preventive of and remedy for scurvy, and also as a source of citric acid.

Limelight Means of illumination obtained by heating quicklime to an incandescent state in an oxy-hydrogen flame. A cylinder of lime slowly rotated in the flame produces the characteristic brilliant white light. Though still used for stage effects and in optical lanterns, it is now largely replaced by electricity.

Limerick City, seaport and market town of the Irish Free State; also the capital of the county. It is on the Shannon, 129 m. from Dublin, and is served by the Gt. Southern Ry. and by canals. It consists of Irish Town, English Town and Newtown Pery. The chief trade is shipping, for which there are docks, and much dairy produce is exported. Bacon curing and other agricultural industries are carried on and the city is famous for its lace. The river is crossed here by several bridges. Pop. (1926) 39,448.

The famous siege of Limerick took place in 1691 and the treaty of Limerick was signed after its surrender, on Oct. 3, to the forces of William III.

The title of Earl of Limerick has been borne since 1803 by the family of Pery. The earl's eldest son is called Viscount Glentworth.

Limerick County of the Irish Free State. It covers 1064 sq. m. It is mainly level, but contains the Galtee Mts. in the N.W. The district called the Golden Vale is one of the most fertile parts of Ireland. The chief rivers are the Shannon, which forms the northern boundary, and its tributaries. Limerick is the county

town; others are Newcastle, Rathkeale and Adare. Pop. (1926) 100,895.

Limerick Kind of verse, usually non-sensical and humorous. Said to have been invented by Edward Lear. It consists of five lines. The first, second and fourth lines rhyme, as do the third and fourth, which are shorter. An example is:

There was a young lady of Riga,
Who went for a ride on a tiger;
They returned from the ride
With the lady inside,

And a smile on the face of the tiger.

Limerick competitions, in which the competitor completes an unfinished limerick, have from time to time proved popular.

Limestone General term for rocks whose chief constituent is carbonate of lime. When pure, a limestone is white, but the presence of iron compounds and other impurities give rise to red, brown, green, blue and other tints. Examples of limestones are chalk, dolomite and marble, and most varieties are used in building and allied industries.

Limited Liability Term used in English company law. Since 1855 it has been possible to form companies in which the liability of the shareholders is limited to the amount of their shares. Previously a partner or shareholder was liable to lose everything he had if a business failed, as is the case with private firms to-day. Other legislation, notably acts of 1862, 1908 and 1929, have dealt with the affairs of these limited liability or joint stock companies, but their fundamental position has remained unchanged. The companies are of two kinds (1) liability limited by shares; (2) liability limited by guarantee.

Limoges City of France. It stands on the Vienne, 250 m. from Paris, and is a railway junction. The chief building is the magnificent cathedral. The city is chiefly famous for the porcelain which is made here. This is hard and semi-transparent with a brilliant glaze. The city has a broadcasting station (293 M., 0.7 kW.). Pop. 98,200.

Limonite Name given to brown haematite, the hydrated sesquioxide of iron, containing about 60 per cent. of the metal and occurring in fibrous, concretionary or earthy masses resulting often from the decomposition of other iron ores. A loose porous form deposited in marshes is known as bog iron ore and occurs in Scandinavia.

Limpet Large, widely-distributed sub-order of marine bolly-footed molluscs with conical shells. Abundant on European coasts, the common *Patella vulgata*, clings to rocks with its round sucker-like foot, feeding upon seaweed, its lingual ribbon having 1920 rasp-like teeth. Millions are collected annually for bait, and in some parts of Ireland for food. See GASTROPODA.

Limpopo River of South Africa, also called the Crocodile. It rises in the Transvaal and enters the sea 100 m. to the north of Delagoa Bay. For part of its distance it forms the northern and western boundary of the Transvaal.

Linacre Thomas. English scholar. Born about 1460 he was educated at Canterbury and Oxford. He studied medicine in Oxford and in Italy, and became tutor to Henry VII's son, Arthur. Later he was

physician to Henry VIII. He died Oct. 20, 1524.

Linacre is known as one of the group who forwarded the New Learning in England, More and Colet being others of the group. He was one of the founders of the Royal College of Physicians.

Lincoln City, county borough and market town of Lincolnshire, also the county town. It is on the Witham, 130 m. from London, on the L.N.E. and L.M.S. Ryrs. Its chief glory is the cathedral, one of the most magnificent Gothic buildings in the world, superbly placed upon a hill. A new palace and an old one, as well as a theological college, are associated with the cathedral.

Other antiquities include remains of the Roman city and of the Norman castle; the old guildhall, part of a gatehouse called Stonebow; and John of Gaunt's stables, also an old guildhall. Two houses are among the oldest specimens of domestic architecture in England. Lincoln's industries include engineering works and flour mills. It has a large trade in timber and farm produce. Races are held here. Pop. (1931) 60,346.

Lincoln Abraham. American statesman. He was born in a log hut in Kentucky, Feb. 12, 1809, the son of Thomas Lincoln, who was descended from an emigrant from Hingham, in Norfolk. His mother, Nancy Hanks, died when he was a boy, and in poor circumstances the family moved from place to place, finally settling in Illinois.

Abraham received a little education in school, but more from his own reading. In his rough surroundings he was known as a man of unusual strength and was popular as a story teller. He earned a living on the land, leaving it twice to work on cargo boats that sailed down to New Orleans. He then became a clerk at New Salem, Illinois, and went on a campaign against the Indians in 1832. On his return he and a partner opened a store, but this failed. He then secured a position as postmaster of the town and worked as a surveyor. He qualified as a lawyer in 1836, and began to practice at Springfield in 1837.

In 1834 Lincoln's public life began with his election to the legislature of Illinois, and his talents as a debater won for him the leadership of his party. In 1846 he was elected to the House of Representatives at Washington, but he declined re-election in 1850.

The last period of Lincoln's life began in 1854 when the controversy about slavery became acute. The Republican party was formed to prevent any extension of the slave holding area: Lincoln soon became its leader in Illinois and continued a series of debates with Stephen A. Douglas, begun in 1839-1840. In 1856 he was an unsuccessful candidate for the vice-presidency, but continued to lead the Republican Party, was nominated for the presidency and in 1860 was elected President. In 1861 the Southern States seceded and under his direction the Northern States entered upon the Civil War. Amid circumstances of great difficulty he directed the campaigns and in the end the North was victorious. He had saved the Union, which he always asserted was his aim, although at an enormous cost, and in 1863 he had announced the emancipation of the slaves. In 1864 he was again elected President, his opponent being McClellan, and in his inaugural address he spoke of his desire to heal the wounds of the country. On April 14, he was shot in the theatre at Washington by an actor, J. Wilkes Booth, and died on the following day.

In 1842 Lincoln married Mary Todd. Only one of his four sons survived him, Robert Todd Lincoln, who was American minister in London, 1889-1893.

Lincoln was the greatest figure in the history of his country. There is a statue of him near the Houses of Parliament at Westminster.

Lincoln Judgment Name given to a decision of the Archbishop of Canterbury on matters of ritual in the Church of England. Edward King (q.v.), Bishop of Lincoln, was prosecuted in 1889 for certain acts performed during the celebration of the Holy Communion. The case was heard before E. W. Benson, the Archbishop of Canterbury, and most of the acts declared legal. The decision was confirmed on appeal by the Privy Council.

Lincolnshire Second largest county of England. It has a long east coastline on the North Sea, from the Humber to the Wash. It covers 2665 sq. m. and is divided into three parts, Lindsey, Kesteven and Holland, each with its own county council. Lincoln is the county town: other places are Grimsby, Boston, Grantham and Sleaford. The watering places include Cleethorpes and Skegness. The principal rivers are the Trent, Witham and Welland.

The county is flat, although there are chalk hills in the N.E., and the soil fertile. Wheat, barley and potatoes are grown and cattle are reared. Fishing is another industry. In the north is a coal and iron field. In the S.E. is the fen district and around the Wash is much reclaimed land. Pop. (1931) 624,553.

The **Lincolnshire Regiment**, known as the 10th Foot, dates from 1685. It has a fine record of service, culminating in the Great War. The depot is at Lincoln.

Lincoln's Inn One of the Inns of Court in London. It occupies the site of a house owned by an Earl of Lincoln in the 13th century, between Chancery Lane and Lincoln's Inn Fields. The Old Hall (1506) was restored in 1927.

Lincoln's Inn Fields was laid out as a square by Inigo Jones. It now belongs to the London County Council. In the centre are some gardens and the buildings around include Sir John Soane's Museum and the Royal College of Surgeons. The Fields cover seven acres.

Lind Jenny. Swedish singer. She was born at Stockholm, Oct. 6, 1820. After her first successes at the opera-house at Stockholm in 1838-1841 she studied under Garcia in Paris. In 1847 she appeared for the first time in London and later made her home in England, where "the Swedish nightingale" was very popular. A devout Christian, she gave up singing in the theatre and the opera, and her later appearances were all in oratorios or on the concert platform. She taught singing for a time at the Royal College of Music, London. In private life the wife of Otto Goldschmidt, director of the Bach Choir, she died at Malvern, Nov. 2, 1887.

Lindbergh Charles Augustus. American airman. Born at Detroit, Feb. 4, 1903, of Swedish descent, he entered the Air Mail Service of the U.S.A. In May, 1927, he became known by his flight across the Atlantic for a prize of \$5000. In a monoplane he did the journey from New York to Paris in 33 hours 50 minutes, the first airman to fly the Atlantic alone. In 1929 Colonel Lindbergh married a daughter of Dwight Morrow, late ambassador to Mexico. The

kidnapping of their infant son in 1932 aroused interest all over the world. After a search lasting ten weeks the child's remains were found in the garden of their house.

Lindisfarne Island off the coast of Northumberland, sometimes called Holy Island. In Anglo-Saxon times S. Aidan founded a monastery there. Later it became a Benedictine house, and its ruins remain. About 1500 a castle was built, and restored in the 20th century. At low water Lindisfarne can be reached on foot. The nearest station is Beal. The *Lindisfarne Gospels*, an illuminated MS dating from the 7th century, is in the British Museum.

Lindley **Baron**. English lawyer. Nathaniel Lindley was born Nov. 29, 1828, and educated at University College School and University College, London. He became a barrister in 1850 and in 1875 a judge. In 1881 he was made a judge of the Court of Appeal; in 1897 Master of the Rolls and in 1900 a Lord of Appeal and a life peer. He resigned in 1905 and died Dec. 11, 1921. Lindley's book on the law of partnership is the chief authority on this subject.

Lindley **John**. English botanist. Born at Catton, Norwich, Feb. 5, 1790, he was educated there, and in 1821 entered the service of the Royal Horticultural Society to lay out the garden at Chiswick. He became secretary of the Society and from 1829 to 1850 was Professor of Botany at University College, London. He died Nov. 1, 1865. Lindley wrote *The Vegetable Kingdom* and other books, and edited *The Botanical Register* and *The Gardener's Chronicle*.

Lindrum **Walter**. Australian billiards champion. In 1929 he came to England and beat a number of records, notably when he made a break of 3905 and when he scored 2572 points in a single afternoon. He is left-handed.

Lindsay **Sir Ronald Charles**. British diplomat. A son of the 26th Earl of Crawford and Balcarres, he was born May 3, 1877, and educated at Eton. In 1898 he entered the Foreign Office and gained experience of diplomatic work in Paris and elsewhere. From 1913 to 1919 he was Under-Secretary for Finance in Egypt. In 1924 he went to Constantinople and in 1926, having been knighted, to Berlin as ambassador. In 1930 he was transferred to Washington.

Lindsey District of Lincolnshire. See LINCOLNSHIRE. The title of Earl of Lindsey has been borne by the Lincolnshire family of Bertie since 1626. At one time the earls were also dukes of Ancaster. The earl's seat is Uffington House, near Stamford.

Linen Textile material made from the flax fibres of the flax plant, *Linum usitatissimum*. The flax fibres represent the hard bast of the stem and are prepared by retting, a process in which fermentative bacteria in water act upon the cementing substance of the bast separating the fibres. This process is effected by steeping the stems in ponds, tanks or streams. The retted straw is dried, and then broken or scutched in mills to remove all extraneous matter. By passing through hackling mills, the short fibres or tow are separated from the long fibres or line which are then spun into yarn for making linen. Lawn, Cambric and damask are examples of fine textured linen, while sheeting and some grades of tablecloths are made from coarser yarn. The chief seat of the industry is Northern Ireland.

Ling Soft-finned food-fish of the cod family (*Molva vulgaris*), ranging from Iceland to the English Channel. Dark-grey, lighter beneath, 4-6 ft. long, it is a ground-fish, trawled at 50-100 fathoms in the North Sea, and line-fished in winter. Salted or dried as Lenten stockfish for Central and South Europe, it yields inferior "cod-liver" oil.

Lingard **John**. English historian. He was born at Winchester, Feb. 5, 1771, and educated at Douai. He became a teacher in a Roman Catholic college in Durham and there remained until 1811. He died at Hornby in Lancashire, where he had been in charge of a mission since 1831, July 17, 1851. He refused to become a cardinal.

Lingard is known by his *History of England* which takes the story up to 1888. It was very popular, and a new edition, edited and extended to 1910 by Hilaire Belloc, appeared in 1914.

Lingfield Town of Surrey. It is 10 m. from Reigate, on the S. Rly. The beautiful collegiate church dates from the 15th century and there is an old prison, now used as a museum. Races are held here.

Link Unit of measurement. Gunter's surveying chain contains 100 links, each 7.92 in. The American engineering chain, sometimes used in surveying, has 100 links, each 12 in.

Link Torch of tow or hards dipped in pitch: perhaps so called because cut into lengths or links. Before street illumination developed they served for lighting passengers: linkboys piled for hire. Iron link-stands with rings for holding links, and funnel-shaped extinguishers, occasionally survive on old London house doors.

Linlithgow Burgh, market and county town of Linlithgow, or West Lothian, 17 m. from Edinburgh, on the L.N.E. Rly. The palace, the birthplace of Mary Queen of Scots, overlooks Linlithgow Loch and was a residence of the kings of Scotland. It is open to visitors and is second in historic interest only to Holyrood. St. Michael's Church is one of the finest parish churches in Scotland. The town has leather and paper manufactures. Pop. (1931) 3666.

Linlithgow **Marquess of**. Scottish title held by the family of Hope. John Adrian, 7th Earl of Hopetoun, who was the first Governor-General of Australia, was made Marquess of Linlithgow in 1902. He left Australia in 1905 and in that year was Secretary for Scotland. His son, Victor, the 2nd marquess, in 1923 was chairman of the committee that inquired into the price and marketing of agricultural products and issued the Linlithgow Reports. His seat is Hopetoun House, near Linlithgow, and his eldest son is called the Earl of Hopetoun.

Linlithgowshire County of Scotland, land, also called West Lothian. It covers 120 sq. m. and has a coastline on the Firth of Forth. Linlithgow is the county town; other places are Broxburn, Bo'ness, Bathgate and Queensferry. The Avon and the Almond are the chief rivers and there are hills in the north. Pop. (1931) 81,426.

Linnaeus **Carl**. Swedish botanist, later styled Carl von Linné. He was born at Rasekult in Smaland, May 23, 1707, and early studied botany. He was educated at Upsala University for a medical career, but in 1730 was appointed Assistant Professor of Botany. In 1735 he gained his doctor's degree

h. Holland, and on his return to Sweden practised for some years as a physician, but from 1741 until his death he was Professor of Botany at Upsala. In his most famous works, the *Systema Naturae*, *Genera Plantarum* and *Bibliotheca Botanica*, Linnaeus laid the foundations of modern botanical nomenclature. He died Jan. 10, 1778. His library and collections became the property of the Linnean Society, Burlington House, London, in 1828.

Linnell John. English painter. Born in London, June 16, 1792, he turned his attention from portraits to landscapes and engravings. His landscapes are chiefly scenes in Surrey. Examples of his work are to be seen in the National and Tate Galleries, London. He died Jan. 20, 1882.

Linnet Common British resident song-bird of the finch family, *Linola cannabina*. Stout-billed, 5½ in. long, it is called grey, brown or rose according to sex or season. Its well-lined nest shelters 4 to 6 brown-speckled, dirty-white eggs. A favourite cage bird, it ranges Europe and W. Asia, wintering southward, being largely replaced in Scotland by the mountain linnet or twite.

Linnhe Loch or arm of the sea. It is on the W. coast of Scotland, between the counties of Inverness and Argyll.

Linoleum Trade name, meaning linseed-oil fabric, of a kind of floorcloth. Patented 1860 and 1863, it comprises oxidised linseed oil incorporated with ground cork, resins and pigments, pressed upon a coarse canvas backing between steam-heated rollers. It may be self-coloured, printed or inlaid with coloured compositions. It is made in Lancaster, Greenwich and Dunfermline.

Linotype Printing machine which sets up a whole line of type by a series of mechanical operations. In a similar manner to a typewriter the operator depresses a key releasing a matrix or metal plate, bearing a corresponding letter, from a magazine. The matrices are carried along to a compartment on the machine in which molten type metal is forced against the matrices to form casts of the lines of letters, the machine then returning the matrices to the magazine.

Linseed Ripened and dried flax seeds. brown, the outermost coat contains mucilage; from the cotyledons are expressed, with or without heat, 40 per cent of a valuable drying oil used for paint, varnish, linoleum, soap and printers' ink. The residual 60 per cent. is pressed into oil-cake for cattle food. Of the world's production of 4,000,000 tons Argentina raises half, India, Russia, Canada and U.S.A. the remainder. **Linseed poultices**, of freshly ground meal, are unsuitable for open wounds.

Linthwaite Urban district of Yorkshire (W.R.). It is on the Colne, 3 m. from Huddersfield, a centre for woollen manufacture. Pop. (1931) 9689.

Lion Largest of the cat tribe (*Felis leo*), sometimes reaching 10 ft. overall, and surpassing 500 lb. The shaggy mane on the male's head and shoulders distinguishes it from other large Old World cats; the tufted tail conceals a thorn-like spine. The tawny coat, pale to deep, is uniform; the mottling and striping of the cub's coat disappears at maturity. Barbary, Senegal and Persia furnish varieties; one was contemporary with early man in England. Lions prey on antelope, zebra and other large mammals, also on cattle and

pigs; man-eating is rare. They are found in Africa and parts of Asia, including India.

Lion Heraldic charge, especially on royal and princely shields. The earliest attitude, roared on hind legs, was called rampant, distinguished from passant, walking on three paws; statant, walking on four paws; sejant, recumbent; salient, springing; gardant, denoting full-faced. The lions of England, first used on Richard I.'s great seal, 1194, are passant gardant.

Lip Upper and lower muscular border of the mouth, comprising skin, fibrous and glandular tissue, muscle and mucous membrane. The superficial blood vessels impart a rosy colour which anaemia renders pallid and defective oxygenation livid. Lip-ornaments, characterising certain African and American Indian peoples, are made of stone, bone, wood, metal, shell and feathers, usually involving perforation. See HARE-LIP.

Lipari Group of 7 islands about 20 m. from the N. coast of Sicily and 46 sq. m. in area. They are volcanic and Stromboli is still active. The town of Lipari, on Lipari Is., is the capital with a good harbour, and a castle built by Charles V. The soil is fertile and the islanders grow olives, currants, etc. Pop. 22,000.

Lipoma Name given to a certain kind of innocent tumour, in which fat is mingled with the tissue. It is found on any part of the body, chiefly in persons of sedentary habits and is harmless. The only real cure is surgical.

Lippe State of N.W. Germany, now a republic. It covers 469 sq. m. and Detmold is the capital. The Weser is the chief river. The soil is fertile, but much of the land is forest. Pop. 163,650.

The River Lippe is a tributary of the Rhine. It flows through Westphalia and is 150 m. long.

Lippi Fra Filippo. Italian painter. He was born at Florence in 1412 and became a monk, hence the designation Fra or Frater. Living at Padua, Florence, Prato, where he was chaplain in a convent, and elsewhere, he painted a good deal and there are pictures by him in the National Gallery, London, the Louvre and other European collections. He died at Spoleto in Oct., 1469.

His son, Fra Filippino Lippi (1460-1504) was equally famous as a painter and some of his work is in the National Gallery, London.

Lip-Reading Understanding the speech of others by observing the movements of lips and tongue, and the facial expression. Some deaf persons employ it instead of watching finger-spelling. It has proved unsatisfactory for the systematic training of deaf-mutes, except in combination with manual methods. The British National Institute for the Deaf recognises as one of its objects the re-education of the partially deaf through speech-reading. See DEAFNESS.

Lipton Sir Thomas Johnstone. British merchant. Of Irish parentage he was born in Glasgow May 10, 1850. He began life as an errand boy and about 1865 went to the United States. In 1876 he opened a provision shop in Glasgow. The business prospered; other shops were acquired, and in a few years the firm of Lipton's, Ltd., became one of the largest in the retail provision trade, with interests in Ceylon and elsewhere. In 1898 Lipton was made a knight, and in 1902 a baronet. He died unmarried, Oct. 21, 1931. To the public Lipton was best known as a

yachtsman and a liberal donor to the hospitals. He built several yachts, called *Shamrock*, which competed for the America Cup.

Liquation Metallurgical process for the separation of a metal from its ore. It is used especially in the case of complex ores containing mixtures of lead, silver and copper, by heating the ore in a furnace to a temperature at which those constituents, having lower melting points than the rest, sweat out or liquate from the mass.

Liquefaction Term used in physics. It describes the change of a substance from a solid to a liquid, as ice to water, and also the change from a gas to a liquid. The latter results in liquid gases, such as liquid air, liquid oxygen and others, which are much used in commerce. The processes, which were greatly developed by the researches of Sir James Dewar, are very elaborate. The gases are cooled by allowing them to expand.

Liqueur Potable spirit, usually sweetened with a distinctive flavouring. Well-known varieties include Kirsch and Maraschino, distilled from or flavoured with cherries; Kümmel, flavoured with caraway seeds; Curaço, with bitter orange peel; Absinthe, with wormwood; Noyau, with fruit-kernels. Benedictine and green or yellow Chartreuse utilise secret monastic recipes. Crèmes are usually thick and oily, e.g., Crème de menthe. Apricot, cherry, orange and peach brandy, and sloe gin, are prepared by steeping the fruits. Vermouth is fortified and aromatised white wine.

Liquid State of matter in which the molecules are held together by cohesion to a less degree than in a solid, and have a greater freedom of movement giving the property of fluidity.

Measures used for liquids are called liquid or fluid measures. In Great Britain the standard measure is the gallon, defined as the measure of 10 lb. of distilled water at 62°F. with the barometer at 30 in., making it contain 277.274 cubic in. of distilled water. The unit in the metric system is the litre. See LITRE.

Liquid Fire Weapon introduced by the Germans during the Great War. It was an inflammable oil ignited from a blow pipe called a flammenwerfer, or flame-thrower. Gas was used to eject the oil which then burst into flame.

Liquidation Term generally used for the paying of debts when a limited company is insolvent. It is the equivalent of bankruptcy in the individual. A company, however, may go into liquidation for purposes of amalgamation or reconstruction, or because the object for which it was formed has been attained. There are three modes of liquidation; voluntary, voluntary under the supervision of the court, and compulsory.

Liquor Control Supervision by the state of the sale of intoxicating drink. In Great Britain no one can sell intoxicating liquor, for consumption on or off the premises, unless he obtains a licence. These licences are granted by the magistrates, and an annual charge, dependent upon the value of the public house, is paid. A licence is usually only granted for a year and can be withdrawn if its holder infringes the law. The police are responsible for seeing that the law is observed, and they can object, as can any one else, to the renewal of a licence if they have grounds for complaint. In Scotland there is a system of local option.

Other methods of control, notably the Gothenburg System in Sweden, have been tried, these including a partial control by the State, as in some provinces of Canada.

In England, during the Great War, the State took entire control of the sale of intoxicating liquor in certain areas where munitions were made. After the war this control was retained in the Carlisle district, where it is still managed by a board of control under the Home Office. In 1930 a royal commission was appointed to inquire into the licensing laws as they concern the sale of intoxicating liquor. See LOCAL OPTION.

Liquorice Brittle, blackish substance (*glycyrrhiza*). It comprises juice extracted from the long, woody roots of a perennial Mediterranean leguminous herb. Both this stick liquorice and the peeled root serve as a mild laxative, sweetmeat, flavouring for nauseous medicines and demulcent in throat lozenges. It comes from Pontefract, Yorks., but chiefly from Calabria and Spain.

Lira Unit of currency in Italy. It is divided into 100 centesimi and is coined in silver. Paper lire were also issued. The nominal value of the lira is 9½d., the same as the franc, but it has depreciated since the War. In 1927 it was stabilised at 92½ to the £.

Lisbon City and seaport of Portugal, on the estuary of the Tagus, about 12 m. from the sea, it has been the capital since 1260. It has a pleasing climate and a fine situation and is much visited by foreigners. The Praça do Commercio is the largest of several fine squares, and there is a huge bull ring. The river makes a magnificent harbour, well equipped with docks, and considerable business is due to its position as the financial and distributing centre of the republic. It is also a fishing port and has two broadcasting stations (31.25 M., 2 kW., and 282.2 M., 2 kW.). The city includes Belem and Alcântara, famous for its marble aqueduct, and covers 50 sq. m. It was almost destroyed by an earthquake on Aug. 1, 1755. Pop. (1930) 594,390.

Lisburn City, urban district and market town of Co. Antrim, N. Ireland, on the Lagan, 8 m. from Belfast, on the G.N. (Ireland) Rly. The principal industry is linen manufacture. Pop. 12,400. The title of Earl of Lisburne has been held since 1776 by the family of Vaughan.

Liscard District of Cheshire. On the River Mersey with a station on the L.M.S. Rly., it is in the county borough of Wallasey. Pop. 16,533.

Lisieux Town of France. In the department of Calvados, it is on the River Touques, 30 m. from Caen by rail and 19 from Honfleur. The church of S. Pierre was once a cathedral. The episcopal palace is now a museum. Pop. 16,000.

Liskeard Borough and market town of Cornwall, 15 m. from Plymouth, on the G.W. Rly. There is a trade in agricultural produce. Pop. (1931) 4266.

Lismore Island of Argyllshire, 9½ m. long and 1½ m. broad, at the entrance of Loch Linnhe. There are ruins of a cathedral and a castle, and a collection of Gaelic poems known as the Book of the Dean of Lismore. Agriculture and fishing are the chief occupations, and there is a lighthouse on the S.W. point. Pop. 357.

Lismore Town of Co. Waterford, Irish Free State. It is on the Blackwater, 4 m. from Cappoquin, on the Gt. S. Rlys.

The castle, once the property of Sir Walter Raleigh, is now a seat of the Duke of Devonshire. Pop. 1600.

Lister Baron. English surgeon and scientist. Joseph Lister was born at Upton, Essex, April 5, 1827, the son of a member of the Society of Friends. He was educated in London and became a doctor. Specialising in surgery, he was made professor of that subject at Glasgow in 1860: in 1869 he became Professor of Clinical Surgery at Edinburgh, and in 1877 at London. In 1885 he was made a baronet and in 1897 a baron. His other honours included the Order of Merit and the presidencies of the Royal Society and the British Association. He died Feb. 10, 1912, when his title became extinct.

Lister was one of the greatest surgeons of his time, and is famous as the inventor of antiseptics. The Lister Institute of Preventive Medicine was founded in 1891 and took its present name in 1903. Its headquarters are at Chelsea and it has laboratories at Kistree.

Listowel Market town and urban district of Co. Kerry, Irish Free State, on the little River Feale, 170 m. from Dublin, on the G.S. Rlys. There are ruins of a castle. The town has an agricultural trade. Pop. 2917.

The title of Earl of Listowel has been borne by the family of Hare since 1822. The earl's eldest son is called Viscount Ennismore.

Liszt Franz. Hungarian musician. Born Oct. 22, 1811, the son of Adam Liszt, he began to show his genius when a child. He studied music in Vienna and Paris, and soon became known on the concert platforms, appearing in London and other centres. In 1849 he was made conductor of the opera at Weimar, where he remained until 1861. The rest of his days were passed mainly in Paris and Budapest, and he died at Bayreuth, July 31, 1886. In 1865 he took orders in the Roman Catholic Church, and he is sometimes called the Abbé Liszt.

Litany Form of prayer or supplication in which the responses are said by the congregation. It was first used in the 4th century and since then many litanies have been compiled. The litany of the Church of England is based on the one compiled by Cranmer in 1544.

Litharge Monoxide of lead. It is formed when lead is heated strongly in air, causing slow oxidation of the metal, or by heating lead carbonate to dull redness. As a heavy straw-yellow powder it is known as massicot, but when melted to form a crystalline solid as litharge. It is used as a glaze for pottery and in glass, enamel and rubber manufactures.

Litherland Urban district of Lancashire, 4 m. from Liverpool, on the L.M.S. Rly. The Liverpool overhead electric railway also has a station here. Pop. (1931) 15,967.

Lithgow Town of New South Wales. It is 100 m. from Sydney by rail and is a mining centre, with coal, iron ore and shale. There are some manufactures. Pop. 16,380.

Lithium Metallic element having the atomic weight 6.94. The symbol Li, and melting point 186°C. Lithium occurs only in combination in such minerals as spodumene, lepidolite and petalite, each of which is used as a source of the metal and its compounds. Lithium is the lightest known solid, silvery-white, soft and easily cut.

Lithography Process of surface printing taken from stone, zinc or aluminium. It was invented about 1798 by Aloys Senefelder. Earlier lithography was done upon a close-grained stone from Solenhofen in Bavaria. The process is based upon the antipathy between grease and water, so that when the stone or plate, upon which is a drawing in greasy ink, is moistened with water and an inked roller is passed over the surface, the ink is retained by the drawing, but rejected by the water elsewhere.

Lithosphere Term used to denote the solid mass of the earth. The lithosphere has an irregular surface and has been divided into an abyssal area where the ocean is over 10,000 ft. deep, a transitional area where the water is under 10,000 ft. in depth, and a continental area forming the land surface.

Lithuania Republic of Europe. Formerly part of Russia. It lies between Latvia, Poland and Germany, and has a coastline on the Baltic. Its boundaries with Poland are not absolutely settled as both countries claim Vilna and district. Kovno or Kaunas is the temporary capital, but Vilna, which is in the possession of Poland, is regarded by Lithuanians as the capital. Other places are Grodno or Gardinas, and Suwalki, both still retained by Poland. Memel is the chief seaport, but here Poland has certain rights. The area is 21,489 sq. m., but with the regions in dispute it is about 30,000. Pop. (1931) 2,367,072.

Lithuania is an agricultural country, level and fertile. Oats, wheat, rye, and potatoes are among the crops; cattle, sheep, and pigs are reared and there are large forest areas. Dairy produce, corn, cattle, timber and hides are the chief exports. The army is recruited by compulsory service. The litas, worth about 4d., is the unit of currency. There is a state bank which issues notes.

The constitution of the country consists of a President, elected for seven years, and a cabinet under a Prime Minister. This is responsible to a legislature or diet, elected every five years by all men and women.

Soon after 1300 Lithuania became a grand duchy and in the 15th century was a very large state, stretching from the Baltic to the Black Sea. In 1569 it was united with Poland, although in some respects remaining independent. At the end of the 18th century, like that country, it was partitioned, Russia and Prussia dividing it between them.

In 1918, the Lithuanians, then under Russian rule, proclaimed their independence. Russia recognised this in 1920 and the European powers in 1922. In 1926 military officers overthrew the government and appointed a new President who was re-elected in 1932.

Litmus Colouring matter obtained from various lichens (*Rocella lecanora*, etc.). Litmus is used as a chemical test for acids and alkalis, as its natural purplish-blue colour is turned red by acids and restored by alkalis. The lichens are treated with ammonia and fermented, then with an alkaline carbonate and lime, the liquor finally being evaporated.

Litre Unit of capacity in the metric system of weights and measures. It is calculated very carefully as the volume of a cubic decimetre, but, roughly speaking, 4½ litres are equal to a gallon.

Litter Portable bed or couch. Used in early Greece, this method of travel improved after the Persian contact. Curtained

and roofed litters supported by poles on men's shoulders spread throughout the Roman Empire and mediaeval Europe until supplanted by travelling coaches. Hand litters for transporting army wounded occur, besides horse, mule and camel litters. See SEDAN CHAIR.

Littleborough Market town and urban district of Lancashire, 4 m. from Rochdale, on the L.M.S. Rly. The chief industries are cotton manufacture and coal mining. Pop. (1931) 12,028.

Little Englander Term used for one who is opposed to any expansion of the British Empire. A term of contempt, it was first used about 1890. See IMPERIALISM.

Little Entente Name used for the alliance between the countries of Czecho-Slovakia, Rumania and Yugoslavia. It was founded in 1920 and renewed in 1929.

Littlehampton Seaport, watering place and urban district of Sussex, at the mouth of the Arun, 62 m. from London, on the S. Rly. The sands and bathing are good and there are golf links. On the front is a large green. The river is crossed by a bridge and a ferry. There is a little shipping. Pop. (1931) 10,181.

Littleport Town of Cambridgeshire, on the Great Ouse, 6 m. from Ely, on the L.N.E. Rly. The main industry is marketing the fruit and vegetables that are grown in the district.

Littlestone Village and watering place of Kent, 8 m. from Hythe, on the S. Rly. There are golf links here.

Littleton Village of Middlesex, 3 m. from Staines. The Metropolitan Water Board has one of its largest reservoirs here, opened in 1925.

Littleton Sir Thomas. English lawyer. He was born at Frankley, Worcestershire, about 1410. In 1466 he was made a judge, and he died Aug. 23, 1481.

Littleton is known because he wrote in Norman French a treatise on tenures, which is one of the earliest text books of English law. It has been translated into English and on it Sir E. Coke wrote a famous *Commentary*.

Littoral Term in geography to denote the land adjacent to the coast of a country. The physical configuration of the coastal regions varies greatly: in some areas it is a belt of low elevation with estuaries or deltas of large rivers and forming centres of economic production, in others rugged cliffs and a littoral of high elevation, sparsely populated and less productive.

Liturgy Greek word meaning "public service," used in several senses. It refers to any or all of the services in the Book of Common Prayer, which contains the liturgy, or liturgies, of the Church of England. More strictly it applies to the form or office for the administration of the Holy Communion, a use to which it was put as early as the 4th century.

Litvinoff Maxim. Russian politician. He was a Jew named Findelstein before taking his present name. He joined the Communist Party in Russia and worked for it in London where he was engaged for a time as a journalist. He became one of the leaders of the Soviet and in 1918 was sent to London as its representative. Soon, however, he was obliged to leave the country, and he then represented his country in Sweden and

Norway. In 1930 he was made Commissioner for Foreign Affairs, and as such took part in several international conferences.

Liver Largest glandular organ in the body. Normally weighing 50-60 oz., it is situated on the right side, diaphragm above, intestines and right kidney below. Blood from the stomach and intestines enters it through the portal vein, some harmful substances are abstracted, and the food's vegetable starch converted into animal starch or glycogen, which is stored ready for reconversion into sugar and restoration to the blood as required. The hepatic veins receive this as well as that derived from the hepatic artery after circulating through the organ for its own nourishment. Another duty is to form bile, which pours into the duodenum direct or collects in the gall-bladder. See BILE, JAUNDICE.

Liver Fluke Worm which is harmful to horses, cattle and dogs. It is about an inch long and obtains its name because its eggs are nourished on the liver of the water snail. As worms they leave the snail and fasten themselves on to blades of grass where they are liable to be eaten by sheep. In this way sheep may contract a serious disease called distomatiasis.

Liverpool City and seaport of Lancashire, on the estuary of the Mersey, 201 m. from London, on the L.M.S. Rly. An electric overhead railway serves the city and its suburbs. The area is 33 sq. m. Canals link the Mersey with the trading centres in the N. and centre of England.

The buildings include the cathedral begun in 1904, which occupies a commanding site, and which, when finished, will be one of the finest modern churches in the world. The Roman Catholics have planned to build a cathedral which will rival St. Peter's in size. The university, founded in 1903, has a school of tropical medicine and a technical college. In 1932 a radium institute was opened.

The main industry of Liverpool is shipping, especially the import of cotton. Controlled by the Mersey Docks and Harbour Board there are extensive docks on both sides of the river, the quays being 37 m. in length. Other industries are the manufacture of cement, chemicals, etc. The city obtains its water supply from Lake Vyrnwy in N. Wales. Pop. (1931) 855,539.

Liverpool Town of New South Wales, 22 m. from Sydney. It is the centre of a sheep-rearing district. Pop. (1926) 5910.

Liverpool Earl of. English title held by the families of Jenkinson and Foljambe. Its first holder was Charles Jenkinson. Born April 26, 1727, he became prominent in politics and held office under Pitt. In 1786 he was made Baron Hawkesbury and in 1796 Earl of Liverpool. He died Dec. 17, 1808.

Liverpool's son and successor, Robert Banks Jenkinson, was born June 7, 1770. He entered the House of Commons in 1790 and in 1801 became Foreign Secretary. As such he helped to make the Treaty of Amiens. In 1804 he became Home Secretary, under Pitt, and Prime Minister. His long term of office of 15 years was marked by a steady resistance to reform. He died Dec. 4, 1828, and the title became extinct on the death of the 3rd earl in 1851.

In 1893 Cecil George Savile Foljambe, a grandson, through his mother, of the 3rd earl, was made Baron Hawkesbury and in 1905, Earl of Liverpool. His son, Arthur, the 3rd

earl, who succeeded in 1907, was Governor-General of New Zealand, 1912-20.

Liverpool Street Thoroughfare in London. It runs from Bishopsgate Street to Blomfield Street, and gives its name to a great railway station, opened in 1875 to serve the G.E. Rly. It is now a terminus of the L.N.E. line. The street, once called Old Bethlehem, was named after the Prime Minister, Lord Liverpool.

Liverwort Flowerless plant of a class closely allied to mosses (*Hepaticae*). They differ in having two-sided stems, spiral threads among the spores, and a simpler organisation. Being chlorophyll-bearing, they are green or brownish-green, usually growing on rocks or trees in marshy situations; a few are aquatic.

Livery Word meaning "thing delivered," originally denoting the provision of food and clothing for a household. From the sense of a fixed food ration for horses came the term livery-stable, ultimately designating one keeping horses and carriages for hire. From the sense of a fixed supply of household clothing it passed into the uniform adopted by princes, barons and others for their civilian or military retainers; from the distinctive clothing of trade-guilds it came to denote the livery companies themselves.

Living Ecclesiastical benefice, held by a rector or a vicar. He must have been in holy orders for two years, and is presented to the living by the patron. It is a freehold estate and from it he cannot be removed except for a serious moral or ecclesiastical offence. He must reside in the parish for at least nine months of the year unless he gets leave from the bishop for a longer period.

Livingstone David, Scottish missionary and traveller. Born at Low Blantyre, Lanarkshire, March 19, 1813, a son of Neil Livingstone, a small trader, he began to work in a cotton mill as a child. He managed to obtain some education and saved enough money to graduate in medicine at the University of Glasgow. In 1840, under the auspices of the London Missionary Society, he went to Bechuanaland, S. Africa, where he was associated with Robert Moffat.

In 1849 Livingstone began his explorations. He travelled down the Zambezi, discovered the Victoria Falls, Nyassa and other lakes, and his last journeys were made to discover the sources of the Nile. In Oct., 1871, he was rescued at Ujiji by Stanley. He died at Ilala on May 1, 1873, and was buried in Westminster Abbey. Livingstone married Mary, daughter of Dr. Moffat. His work is commemorated by the Livingstonia Mission of the Church of Scotland, and there are memorials to him at Blantyre.

Livingstone Capital of Northern Rhodesia, near the Zambezi River, 287 m. from Bulawayo by railway. It has government buildings and an Anglican church. Pop. 800.

A mountain range about 100 m. long, N. of Lake Nyassa is named after Livingstone, as is a gorge on the Zambezi.

Livy Roman historian. Titus Livius was born in Padua in 59 B.C., and died in A.D. 17. His *History of Rome* was in 142 books, and the 35 books which remain cover the period from the founding of the city (753 B.C.) until 9 B.C. From time to time come reports that some of the lost books have been found. Livy was a lively and vivid, if not always accurate, historian.

Lizard Order of scale-clad reptiles found in all temperate and tropical regions. They differ from snakes by having normally four limbs, movable eyelids, external ears, and mandibles suturedly united. New Zealand's lizard-like non-sealy tuatara forms a separate order; newts are smooth-skinned batrachians. The 1700 species are carnivorous or herbivorous, mostly terrestrial and arboreal, producing either eggs or living young. The Gila monster is the only venomous form. Geckos, chameleons and true lizards form sub-orders. Of Britain's four species, the common *Lacerta viripara*, 7 in. long, and the snake-like blind-worm produce living young; the sand-lizard, 9 in., is egg-laying. Guernsey has the European green lizard, 12 to 16 in. long.

Lizard The. Most southerly point of England. It is in Cornwall, 10 m. from Helston, and is reached by motor vehicles. On the headland are a lighthouse and a wireless station and around it are some famous coves and much magnificent scenery. The village near, a popular pleasure resort, is called Lizard Town.

Llama S. American two-toed ruminant. It is related to Old World camels, but smaller, humpless and woolly-haired (*Lama glama*). Pre-Columbian America domesticated two breeds of the wild guanaco. Of the llama, usually white, the males served as beasts of burden, the females providing milk and flesh food. The alpaca, usually black, provided wool.

Llanberis Village of Caernarvonshire, 9 m. from Caernarvon, on the L.M.S. Rly. Called the Chamonix of Wales, it is a good starting place for the ascent of Snowdon. Near are two lakes, one over a mile long, and some slate quarries. The Pass of Llanberis, the wildest in Wales, rises to over 1100 ft. A coach road goes over it.

Llandaff City of Glamorganshire. It is part of the city of Cardiff, on the River Taff, 149 m. from London, on the G.W. Rly. The small cathedral was completely restored in the 19th century. Llandaff has been the seat of a bishop since about 600. It has ruins of a castle.

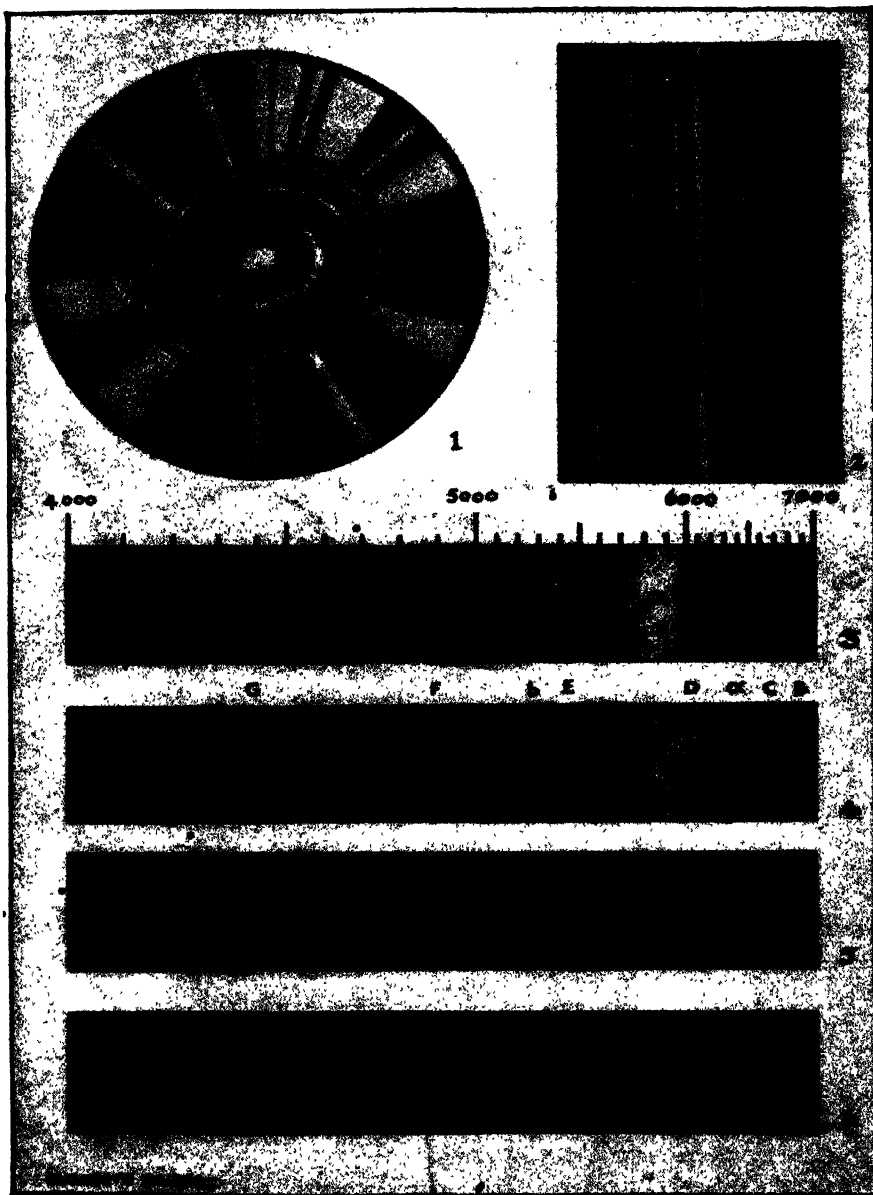
Llandeilo Market town and urban district of Carmarthenshire, on the Towy, 15 m. from Carmarthen, on the G.W. Rly. Near is Dynevor Castle, the seat of Lord Dynevor, built to replace a castle first erected in the 9th century. The town is named after S. Tello, a bishop of Llandaff, and has an agricultural trade. Pop. (1931) 1886. A division of Ordovician rocks is called the Llandeilo group by geologists.

Llandoverly Borough and market town of Carmarthenshire, on the Towy, 26 m. from Carmarthen, on the G.W. Rly. There are ruins of a castle. Pop. (1931) 1980.

Llandoverly College is one of the chief public schools in Wales. Founded in 1848, it has accommodation for about 200 boys.

In geology Llandoverly rocks are a division of the Silurian. They are much used for making roads and for building purposes.

Llandrindod Wells Urban district place of Radnorshire, on the Ithon, 45 m. from Shrewsbury, on the L.M.S. Rly. In the 18th century its mineral springs became known, and they are visited by sufferers from gout, rheumatism, skin diseases and other complaints. The town stands high, and has many attractions for visitors. Pop. (1931) 2025.



THE MIRACLE OF LIGHT AND COLOUR.—1. Newton's Rings seen through a microscope. 2. Interference fringes formed by waves of light in and out of "step." 3. Continuous spectrum of white light, with scale of wave-lengths in ten-thousandths of a centimetre. 4. Solar spectrum showing Fraunhofer absorption lines. 5. Swan spectrum, from the light of comets. 6. Monochromatic spectrum of sodium flame.

Llandudno Watering place and urban district of Caernarvonshire. It is on the N. Coast, where the Conway falls into the sea, and is on the L.M.S. Rly., 48 m. from Chester and 228 from London. In the 19th century it became a very popular pleasure resort. The sands are good and there is a fine promenade. The Happy Valley is an amusement centre. Steamers go to Liverpool and elsewhere. Pop. (1931) 13,677.

Llanelly Borough, seaport and market town of Carmarthenshire. It is on Burry Inlet, part of Carmarthen Bay, 12 m. from Swansea, on the G.W. Rly. The chief industries are tinplate works, copper refineries and chemical works. There is a good harbour with extensive docks. Pop. (1931) 38,393.

Llanfairfechan Urban district of Caernarvonshire. About 8 m. from Bangor, it is a popular watering place. Pop. (1931) 3162.

Llangammarch Wells Watering place of Brecknockshire, 15 m. from Llandovery, on the L.M.S. Rly. The waters here are suitable for heart troubles as they contain barium chloride, which is not found anywhere else in the British Isles.

Llangefni Market town and urban district of Anglesey, on the River Cefni, 250 m. from London by the L.M.S. Rly. It is an agricultural centre. Pop. (1931) 1782.

Llangollen Market town and urban district of Denbighshire. On the Dee, 202 m. from London, on the G.W. Rly. It is famous for its 14th century bridge, and the house, Plas Newydd, now a museum, in which the "Ladies of Llangollen," Lady Eleanor Butler and the Hon. Sarah Ponsonby, lived. There are remains of a Cistercian abbey called Valle Crucis, and the scenery around is beautiful. Pop. (1931) 2937.

Llanidloes Borough and market town of Montgomeryshire. It is 14 m. N. of Rhayader, and 198 from London by the G.W. Rly., and is situated on the Severn. It has lead mines and flannel mills. Pop. (1931) 2356.

Llanos Name used in S. America for plains on which cattle graze. They are covered with grass, except in the dry season. They are chiefly in Venezuela. The word, a Spanish one, means "plains."

Llanrwst Urban district and market town of Denbighshire. It is 11 m. from Conway and 234 from London, by the L.M.S. Rly. Malting and tanning are its principal industries. Pop. (1931) 2366.

Llantarnam Urban district of Monmouthshire, 5 m. from Pontypool and 3* from Newport, on the G.W. Rly. Its buildings include Llantarnam Abbey and coal mining is its chief industry. Pop. (1931) 7284.

Llanthony Village of Monmouthshire, 9 m. from Abertaweun, on the Honddu River. Its ruined abbey was a house of the Austin Friars, founded in 1103 and from 1811 to 1814 was the home of Walter S. Landor. Near is a modern abbey founded in 1869 by the Anglican monk, Father Ignatius. It belongs to the English Benedictines.

Llantrisant Market town of Glamorgan-shire, 10½ m. from Cardiff, on the G.W. Rly. There are numerous collieries in the vicinity. Pop. 21,946.

Llantwit Major Market town of Glamorgan-shire. It is 5 m. from Cowbridge on the G.W. Rly. Llantwit had a monastery, which was a famous seat of learning in the Middle Ages, and a seaport, Colhugh, on the Bristol Channel.

Llanwrtyd Wells Urban district of Brecknockshire. An inland watering place, it is 11 m. from Llandovery and 231 from London by the L.M.S. Rly. Pop. (1931) 742.

Llewellyn Name of several Welsh princes. Llewellyn the Great was a prince in N. Wales from 1194 to 1239. He was constantly at war with King John and his son, Henry III. In 1239 he went into a monastery at Aberconway where he died, April 11, 1240. His grandson was the Prince Llewellyn II. who fought against Edward I. He was beaten and made prisoner in 1276, but later released and died in battle near Builth in 1282.

Llewellyn Sir William, English artist Born in Dec., 1863, he studied art in S. Kensington and in Paris. In 1912 he was elected A.R.A. and in 1920 R.A. In 1928 he was chosen President of the Royal Academy. He has painted portraits of Queen Mary and other members of the royal family.

Lloyd Baron. English politician. Born Sept. 19, 1879, a member of the banking family, George Ambrose Lloyd was educated at Eton and Cambridge. He travelled a good deal in Asia and Africa, was for a time in the diplomatic service, and became an authority on the politics of the East. In 1910 he was elected to Parliament as M.P. for W. Staffordshire. In 1918 he was appointed Governor of Bombay, and in 1924 he returned to Parliament as M.P. for Eastbourne. In 1925 Lloyd was appointed High Commissioner for Egypt and the Sudan, and made a peer as Baron Lloyd of Dolobran. He retired in 1930 and returned to public life in England.

Lloyd Edward. English publisher. He was born Feb. 16, 1815, at Thornton Heath and started in business in London as a bookseller and newsagent. He then became a publisher, and in 1842 founded *Lloyd's News*, a London Sunday paper, which was a great success. He also started the *Daily Chronicle*, and established paper mills at Sittingbourne as Edward Lloyd, Ltd. He died April 8, 1890, and until 1918 his business was conducted by his sons. The newspapers have now been incorporated with others, but the paper-making business, one of the largest in the world, is controlled by Lord Camrose.

Lloyd Edward. English singer. Born in London, March 7, 1845, he sang as a boy in the choir of Westminster Abbey, and later in the Chapel Royal. About 1871 he went on the concert platform, and his fine tenor voice made him one of the most popular vocalists in the land. He died March 31, 1927.

Lloyd Harold. American comedian. He was born at Burchard, Nebraska, on April 20, 1894. Beginning as an extra with the Edison Company in 1913 he joined Hal Roach a year later, making a reputation with "A Sailor Made Man," "Granny's Boy," etc. In 1923 he organised the Harold Lloyd Corporation whose first picture was "Giri Shy." Lloyd's humour is clean satire of the bespectacled ingenuous American youth.

Lloyd Marie. English music hall artist. Born Feb. 12, 1870, she first gained recognition in the east end, but later appeared

at the Oxford music hall, and in pantomime at Drury Lane. She was the embodiment of cockney humour, exploiting the cockney genius for low comedy in turns which placed her among the foremost music hall artists. She died Oct. 7, 1922.

Lloyd's London association of underwriters, engaged in the business of insuring ships and their cargoes. It originated about 1688 in a coffee house kept by Edward Lloyd who issued *Lloyd's List* and *Lloyd's News*, both giving particulars about the movements of ships. In 1774 the association, having been properly constituted, moved into the Royal Exchange. There it remained until 1928, when a fine building in Leadenhall Street was opened. The association, which is governed by a committee, was incorporated in 1871. See UNDERWRITER.

Lloyd's Register of Shipping is a society which records particulars of all merchant shipping of 100 tons and upwards, issues standard rules for shipbuilding and supervises construction and compiles statistics of all vessels under construction.

Load Line Plimsoll mark placed amidships on the sides of a vessel to show the limit to which loading may be carried. This mark consists of a twelve-inch circle with a horizontal line drawn through the centre, and in addition a "grid" is marked to show load lines for different seasons and waters.

Loam Term applied to a sandy clay usually containing carbonate of lime, and of sufficiently loose texture to allow of the free percolation of water through it.

Loanda Capital and seaport of Angola, in full San Paolo de Loanda. It stands on a bay protected by the island of Loanda. Connected by railway with the interior, it exports the produce of the land.

Lobby Small hall or waiting room. It is used sometimes for part of a house but more usually in connection with legislative assemblies such as the House of Commons, where voting takes place in two lobbies. Those in favour of a motion go into the "aye" lobby and those against it into the "no" lobby. In other lobbies the legislators interview those who call on them. From this has come the term lobbying, which means that outside interests bring pressure to bear on members of Parliament to support or oppose a certain proposal.

LOBELIA Large genus of perennial and annual plants. They are mostly herbs, of the *Campanula* order, natives of nearly all temperate and warmer regions. The dwarf, compact tufts grown in garden borders, *L. crinus*, came from S. Africa. Tall Mexican cardinal-flowers and Virginian blue cardinals have yielded handsome hybrids, with carmine, purplish-blue, white and rosy-magenta blooms.

Lobengula King of the Matabele from 1870 until 1894. He is known as the leader of the people in their war with the British in 1894, in which they were defeated.

Lobito Bay Harbour of Portuguese W. Africa. It is 4930 m. from Southampton. The best harbour on the W. coast, it is protected by a spit of sand, and large vessels can anchor close to the shore. The bay is famed for its oysters.

Lobster Name of the larger edible marine long-tailed, ten-footed crustaceans. The foremost thoracic limbs have enlarged pincer-like claws. The common

lobster, *Homarus gammarus*, averages 8 to 12 lb.; the American variety sometimes reaches 20 to 23 lb. The larger clawless rock-lobster or crawfish, *Palinurus vulgaris*, has a spiny carapace. The smaller Norway lobster, *Nephrops norvegicus*, has slender pincers.

Lobworm Family of free marine segmented worms living in sea-shore mud and sands, also called lugworm. The common European *Arenicola piscatorum*, devoured by ground-feeding fishes, is a favourite angler's bait. Greenish or brownish, 8 to 10 in. long, it bears 13 pairs of red tufts or gills. Sand swallowed when burrowing, and ejected, forms surface casts between tides.

Local Government System by which counties, towns and other areas are given power to look after their own affairs. The amount of local government is laid down by law and varies according to the importance of the area.

In England the most important measures regulating local government are those of 1834 (towns), of 1888 (counties), and of 1894 (urban and rural districts). A further important measure was passed in 1929. Local government is controlled by the Ministry of Health, until 1919 called the Local Government Board. Scotland and both parts of Ireland have their own systems of local government, on very much the same lines as England. The areas of the various districts are altered as required by the Ministry of Health, or in the case of large towns and cities, by act of Parliament.

Local Option Term used for the system whereby a county, town or other locality is given the power to decide its own policy. In connection with the sale of intoxicating liquor, local option has been in force in Scotland since 1920. There in every burgh or other area a poll will be taken if one-tenth of the inhabitants ask for it, and the electors vote with three issues before them. They can decide on no licences whatever, but in this case the majority in favour must be at least 55 per cent.; they can decide on no change in the existing system; or on a limitation of 25 per cent. of licences. Another poll cannot be taken until three years have elapsed. Local option has been suggested in connection with the opening of cinemas on Sunday.

Locarno Town of Switzerland. It is on Lake Maggiore and has a station on the route through the St. Gotthard Pass to Italy. Here in Oct., 1925, a conference of the European powers was held and a number of treaties known as the Pact of Locarno were arranged, and signed in London on Dec. 1. One guaranteed the existing frontiers of France. Called the Rhine Guarantee Pact, it was signed by Germany, Belgium, France, Great Britain and Italy. Others were signed between Czechoslovakia and Poland and France. Treaties providing for the submission of all disputes to arbitration were made between Germany on the one hand and France, Belgium, Poland and Czechoslovakia on the other. It was decided that Germany should become a full member of the League of Nations.

Loch Term applied to lakes in mountainous districts and to fiord-like inlets of the sea on the coast of Scotland. A typical loch is a long narrow rock-basin of considerable depth and characteristic of mountain valleys formerly subjected to glacial action. By submergence of the lower reaches of the valley the loch may become an inlet of the sea.

Lochaber District of Inverness-shire. It is wild and mountainous, and contains Ben Nevis.

Lochaber axe is the name of an axe much used at one time by the Highlanders of Scotland.

Lochgelly Burgh of Fifeshire. A colliery town, it is 7 m. from Dumfries by the L.N.E. Rly. Pop. (1931) 9297.

Lochmaben Burgh of Dumfriesshire. It is 8 m. north-east of Dumfries by the L.M.S. Rly. Near the town, which is situated on the Annan, are the ruins of a castle of Robert the Bruce. Pop. 1014.

Lochy Lake, or loch and river of Inverness-shire. It is 10 m. long and has been utilised for the Caledonian Canal. The river Lochy runs from the lake to Loch Linne.

Lock Mechanical device for securing a door or lid of a box. It usually consists of a sliding bolt moved by a key. Locks have been in use since ancient times especially among the ancient Egyptians, and those of the Middle Ages down to the 18th century were often of great beauty of design. In 1778 the double-acting tumbler lock was introduced and gave greater security than the common single-acting tumbler, then and still used for the cheaper kind of door locks. A further improvement came with the Chubb detector lock with spring-pressed tumblers, the Hobbs type with safety levers, and the Yale cylinder lock, a modern adaptation of the old Egyptian pin lock. Keyless locks are worked by combinations of letters or numbers or open only at a given time.

Lock Engineering device on canals or canalised rivers by means of which vessels may pass from one level of the waterway to another. The lock consists of an enclosure with watertight gates at each end, sluices being provided to admit or discharge water. When a vessel is passing from a higher reach to a lower one, the lower gates are closed and water admitted until the level within the lock rises to that of the upper reach. The upper gates then are opened to admit the vessel and are again closed, while the sluices discharge the water in the lock until the lower level is reached, the vessel passing out on opening the lower gate. The reverse process is followed for raising a vessel to a higher level.

Locke John. English philosopher. Born Aug. 29, 1632, at Wrington, Somerset, the son of a Puritan lawyer, he became a tutor at Oxford, and also studied medicine and practised there as a physician. In 1666 he became secretary and friend to the Earl of Shaftesbury. From 1675 to 1679, and again from 1683 to 1689, he lived abroad, for political reasons, in France first and later in the Netherlands. He was a Commissioner of the Board of Trade from 1696 to 1700, when he retired. He died Oct. 28, 1704. In 1932 the tercentenary of his birth was celebrated.

Locke's philosophical ideas are set out in his *Essay Concerning the Human Understanding*. In this he argues that all our knowledge is the result of experience; our beliefs in good or evil arise largely from the association of ideas. As a political philosopher Locke ranks high also. In his work *On Civil Government*, he developed the principle that sovereignty depends upon contract, and so put the ideas that animated the Whigs in making the settlement of 1688 upon a philosophical basis. His works include a *Letter on Toleration*, his earliest

work, written in Latin and translated into English, *Thoughts on Education and The Reasonableness of Christianity*. In reply to his critics he wrote further on these subjects.

Locke William John. English novelist. Born in Barbados, March 20, 1863, he was educated at St. John's College, Cambridge. He became an architect, but later turned to literature, and in 1905 scored a success with *The Morals of Marcus Ordeyne*, followed by *The Beloved Vagabond*. His works include *The Joyous Adventures of Aristide Fufol*, *Stella Maria*, *Septimus* and *The Great Pandolfo*. In 1930 he issued a volume of short stories, *The Town of Tombarel*, and after his death appeared *The Shorn Lamb*. He wrote a play *The Man from the Sea*, and adapted some of his novels for the stage. Locke died in Paris, May 16, 1930.

Lockerbie Burgh and market town of Dumfriesshire. It is 10 m. from Dumfries and 76 from Glasgow, on the L.M.S. Rly., and is famous for its lamb fair held in August. There is an old tower, once used as a prison. Pop. (1931) 2574.

Lockhart John Gibson. Scottish author. Born July 14, 1794, he was educated at the High School, Glasgow, and at Balliol College, Oxford. He became an advocate but earned his living by writing. In 1825 he settled in London and was made editor of the *Quarterly Review*, a post he retained until 1853. Lockhart is known for his association with Scott. In 1820 he married Scott's daughter, Sophia, and in 1837-38 he published his *Life* of the novelist, which is a standard biography. He also wrote lives of Burns and Napoleon. Lockhart died at Abbotsford, Nov. 25, 1854.

Lockjaw Infectious disease, also called tetanus (q.v.).

Lockwood William Henry. English cricketer. Born in Nottingham, March 25, 1863, he became known as a cricketer, playing for his own county and later for Surrey. He soon made a reputation, both as a bowler and a batsman, and played for England against Australia in 1893, and again in 1899 and 1902. For some years he was the finest bowler in England, and one of the great all-round players of the game. He retired in 1904, and died April 27, 1932.

Lockyer Sir Joseph Norman. English astronomer. Born at Rugby, May 17, 1836, he entered the Civil Service. He studied astronomy and, while remaining in the service, became prominent as an astronomer. In 1875 he was given a position in the science and art department at South Kensington, and in 1879 was made director of the solar physics observatory there. In 1897 he was knighted, and he died at Sidmouth, Aug. 16, 1920.

Lockyer was the head of eight expeditions that went out to observe solar eclipses and his chief work, as an astronomer, was investigating solar phenomena. He wrote a number of books, one being on the connection between sun spots and the weather.

Locomotive Kind of engine used on railways and mostly belonging to the steam engine type. It has, as general characteristics, simple direct-acting engines on a rigid frame; a square furnace; long fire tubes, with the exhaust steam carried through a blast-pipe within the smoke box to produce a draught through the furnace. In modern locomotives devices for increasing and superheating the steam, heating the feed water supply, together with compound engines and

longer boilers, have been introduced. The "Rocket" of 1829 weighed under seven tons and drew a load of less than 20 tons, while some American locomotives weigh over 200 tons and draw a load of over 3000 tons.

An electric locomotive may consist of a separate carriage containing the motor and control apparatus with either an overhead or track current, or the generator may be housed in a compartment of the carriage, a Diesel oil engine being used for generating the current.

Locomotor Ataxia Disease resulting from progressive degeneration of the nerve tissues of the spinal cord, occasioned by the parasite of syphilis, hereditary or acquired. The muscular movements become unco-ordinated, and the gait and station disordered. Although the disease may not reach this stage for many years after infection, if at all, its presence is shown by the absence of knee-jerks, sluggishness of the pupils and shooting pains in the legs. The sufferer may ultimately become a bed-ridden paralytic.

Locust Name of various short-horned grasshoppers. It usually denotes in Old World use the larger migratory forms of *pachytillus*, *acridium* and *caloptenus*. In the Mediterranean region and S. Africa large swarms periodically obscure the sun and deafen the ear with their rustling wings. The ground-laid eggs develop wingless forms which devour everything available. The destructive migratory Rocky Mountain locust is a *caloptenus* smaller than many British grasshoppers.

The Imperial Institute of Entomology has done a good deal of work in investigating methods of dealing with the locust. In 1932 it was reported that a scientific mission had discovered their breeding places in northern and central Africa. Methods of destroying them that have been successfully tried include leading them into pits and there killing them by chemicals or fire.

Locust Bean Pod of the carob tree. It grows in Asia Minor and Italy, and is remarkable for the large proportion of sugar it contains. Attempts have been made to grow it in S. Africa. It is ground into meal and is chiefly given to cattle that are being reared for food.

Lode Term applied to a metalliferous vein in a rock. A lode represents a fissure which has become filled with ores and other minerals, or in some cases a lode may be a fault due to rock displacement. Lodes vary in width from a few feet to 100 feet and in length up to many miles.

Lodge Sir Oliver Joseph. English scientist. Born at Penkhull, Staffordshire, June 12, 1851, he became Assistant Professor of Mathematics at University College in 1879; Professor of Physics at Liverpool in 1881; and in 1900 he was made first Principal of the new University of Birmingham, a post he held until 1919. In 1902 he was knighted and in 1913 he was President of the British Association.

As a physicist Lodge made important investigations in the field of electricity. His researches on the nature of the sound and electro-magnetic waves were especially valuable, and helped to make wireless telegraphy possible. Later he gave much attention to the phenomena of spiritualism, of which he became one of the leading exponents. His books include *Modern Views of Electricity, Life and Matter, Man and the Universe, Ether and Reality and Relativity*. On spiritualism he has written *Ray-*

mond, or Life and Death, The Survival of Man and Why I Believe in Personal Immortality. His only son, Raymond, was killed in the Great War.

Lodge Thomas. English dramatist. He was born about 1558, being a son of Sir Thomas Lodge, Lord Mayor of London. He was educated at Merchant Taylors' School and Trinity College, Oxford, and afterwards studied at Lincoln's Inn. He went on voyages of adventure across the Atlantic, but much of his time was spent in writing. He wrote several romances, one being *Rosalynde* which gave Shakespeare the plot of *As You Like It*, as well as some poems and translations of Latin authors. His other works include a satire, *A Fig for Momus* and a drama, *The Wounds of Civil War*. With Nathaniel Greene he wrote *A Looking Glass for London and England*. Lodge died about 1625.

Lodger One who resides in the house of another and pays for his accommodation. It has two legal significances. A lodger, if of full age, is entitled to vote at parliamentary and other elections provided he has resided in the constituency for a period of three months immediately preceding the preparation of the register. A creditor cannot seize the goods of a lodger if he levies a distress upon his landlord, whether it is for rent or for debts of any other kind.

Lodi City of Italy. It stands on the Adda, 20 m. from Milan, in the centre of a rich agricultural district. The chief building is the cathedral, dating from the 12th century. On May 10, 1796, Napoleon won a victory here over the Austrians, who were driven from their defence.

Lodz Town of Poland. It is on the River Lodka, 75 m. by railway from Warsaw. The large market square is a feature. Lodz is a centre for the manufacture of cotton and other textiles, also machinery. It has a broadcasting station (235 M., 2 kW.). Pop. 597,183.

Loess Yellowish fine-grained sandy and calcareous loam. It covers large areas in Central and South-Eastern Europe and vast tracts in China, where it occasionally forms deposits 1000 ft. thick. In the Rhine Valley the loess deposits are of fluvial origin, but those in Northern China appear to be due to the action of wind.

Lofoden Group of islands off the coast of Norway. They cover about 1600 sq. m. and are divided into two groups. Hindö is the largest island. The chief occupation is fishing for cod, but there is some farming, although the islands are mountainous and are within the Arctic circle. Pop. 47,000.

Loftus Urban district of Yorkshire (N.R.). It is 22 m. from Middlesbrough and 259 m. from London, by the L.N.E. Rly. The chief industry is ironworking. Pop. 7631.

Log Nautical term for the appliance used to determine the speed of a vessel. In its older form the log consisted of a piece of wood, triangular in shape, attached to a line with knots at intervals of 50 ft. This was towed behind the vessel and the speed estimated by the amount of line paid out in relation to an hour-glass. The modern type of log has a spinning action which turns a pointer upon a dial.

Logan Mountain in the north-west territory of Canada. It reaches a height of 19,514 ft.

Loganberry Hardy, prickly shrub of the rose order. Derived from the European raspberry and a Californian blackberry, it was hybridised by Judge Logan, 1881. It attained swift popularity, reaching Britain about 1900. Cultivated like the raspberry, its 10 to 15 ft. shoots bear in the second year fruits larger, longer and more acid than the raspberry. Loganberries are usually bottled and preserved.

Logan Rock Rounded boulder poised on a rocky base so that it readily oscillates with gentle pressure. A logan rock or stone is the result of weathering *in situ*, or may be a stranded boulder transported by ice. Logan stones occur in Cornwall, in Devonshire, and in Glamorgan at Pontypridd.

Logarithm Index of the power to which a fixed number or base must be raised to be equal to a given number. Thus if 8 is the given number and 2 the base, the logarithm of 8 is 3, as $2^3 = 8$. By the use of logarithms arithmetical calculations may be greatly shortened and for ordinary purposes common logarithms having 10 as the base are used. A logarithm usually consists of a whole number or characteristic, and a decimal fraction or mantissa, the latter only being given in tables of logarithms.

Loggia Roofed, elevated structure open on one or more sides, but forming a part of a building. It is characteristic of Italian architecture, and often incorporated in the design of English country houses.

Logia Greek word, "sayings," used as the title of an ancient collection of oracles or discourses concerning our Lord. Several 2nd-century writers mention such a collection, and the word sometimes denotes the conjectural document, often called *G*, apparently used by S. Matthew and S. Luke. The word is also applied, rightly or wrongly, to two Egyptian papyrus fragments discovered at Oxyrhynchus in 1897 and 1903, professedly containing sayings of Jesus, and two fragments of lost gospels of similar origin.

Logic Science of reasoning, or the science of the laws of thought. The earliest and most influential system of logic was that laid down by Aristotle in his *Organon*. The study was revived by Abelard and other early scholars and logic has been taught in the universities since their day. A new direction was given to it by the *Novum Organum* of Francis Bacon.

Logic may be divided into inductive and deductive. Induction is reasoning from the particular to the universal; deduction is reasoning from the universal to the particular. The products of thought are the term, the proposition or premise and the inference or conclusion. Reasoning takes the form of the syllogism which is in three parts, two statements and a conclusion. Thus a syllogism may be

All men have beards.
A is a man.
Therefore A has a beard.

All men have beards.
A has a beard.
Therefore A is a man.

The first syllogism is correct, but the second is incorrect, the fallacy being what is called an undistributed middle. A may be a monkey because the first premise does not say that all men, but no other animals, have beards.

Logogram (1) Word-sign, *c.g.*, $\&$ and *b.* for *pencil*, *s.* for *skilling*, *d.* for *pence*; sometimes pictorial, *c.g.*, $\&$ for *male*. (2) Versified puzzle comprising several words synonymously representing others derived anagrammatically from the words to be guessed. 'Thus from *curtain* the word *cur* may be replaced by *dog*, run by (a mole's) burrow.

Logos Greek term, "word," employed in ancient philosophy and theology. Heraclitus and the Stoics used it for the manifestation of the godhead in reason. Later Jewish thought regarded Wisdom as a divine attribute; both streams nourished the Logos doctrine of Philo. S. John defined the Logos as the Word of God incarnate (John i.).

Logue Michael. Irish prelate. Born in Co. Donegal, Oct. 1, 1840, he was educated for the priesthood of the Roman Catholic Church and was ordained in 1866. He was made Bishop of Raphoe in 1870. In 1887 he was chosen Archbishop of Armagh and Primate of all Ireland, a post he retained until his death, Nov. 19, 1924. In 1893 Logue was made a cardinal.

Logwood Heartwood of a Central American evergreen leguminous tree (*Haematoxylon campechianum*). Imported in large billets, brownish-red externally, it contains a glucoside forming with metallic mordants blue and black dyes, used in textile dyeing and printing, and in ink-making. Its tannic acid is medicinally a mild astringent.

Lohengrin Hero of German legends. The son of Parsifal, he was one of Arthur's knights. Arthur sent him on a swan to rescue a maiden named Elsa. He did this and then married Elsa, but was taken from her by the swan, because, contrary to command, she had persuaded him to tell her whence he came. The story is the subject of a 13th century poem and around it Wagner wrote an opera.

Löhr Marie. Australian actress. Born in Sydney, July 28, 1890, she made her first appearance on the stage in 1894. In 1901 she came to London and made a reputation by acting with the Kendals, Sir H. B. Tree and Sir John Hare. From 1918 to 1925 Miss Löhr managed The Globe Theatre, London, where she produced *A Marriage of Convenience* and other plays.

Loire River of France, the longest in the country. It rises in the Cévennes and flows past Orleans, Blois, Tours, Nantes and other places to the sea at S. Nazaire. It is over 600 m. long and is famous for the châteaux that have been built on its banks. Its tributaries include the Allier, Indre and Vienne. It gives its name to two departments of France, Loire and Loire Inférieure.

Loki In Norse mythology, a giant personifying destructive fire. His offspring were the Midgard serpent, the wolf Fenris and the evil Hel. After he had caused Balder's death the gods bound him to a rock; freed at Ragnarok, he and Helmdal slew each other.

Lollards Name given to the followers of John Wycliffe. They arose towards the end of the 14th century, objected to prayers for the dead, celibacy and other church ordinances, attacked the wealth and indolence of the clergy and became a political party. Laws were passed against them and, during the reigns of Richard II. and of Henry

IV., they were persecuted and a number of them were put to death. The party died out towards the end of the 15th century, but undoubtedly its teaching prepared the way for the Reformation. The word comes from the Dutch *lollen*, "to sing in a low voice."

Lombard Peter. Italian scholar. Born at Novara about 1100, he studied at Bologna and Paris. He was influenced by Abelard and became a teacher of theology in Paris. In 1159 he was made a bishop of Paris and he died there, July 20, 1160.

Lombard is known as the author of an early work on theology, *Libri quatuor Sententiarum* or *Four Books of Sentences*. It was very popular in the Middle Ages.

Lombards People of Europe, also called the Langobardi, or long axes. Their first home was in Germany, but about 470, under Alboin, they invaded Italy and conquered much of it, including the district still called Lombardy. They had their own dukes or kings and formed an independent duchy or kingdom, the kings wearing the famous iron crown. They were in general hostile to the popes and in 774 they were defeated and subdued by the Pope's ally, Charlemagne.

Lombard Street Street in the city of London. It goes from the Bank of England to Gracechurch Street. It is named from the Lombards who lived here in the 12th century and since then has had a close connection with finance and banking. At present several of the great banks have offices in the street and the name is sometimes used for the money market.

Lombardy District of Italy. In the north of the country, it lies between Piedmont and Venetia and covers over 9000 sq. m. Milan is the capital. Except in the north, Lombardy is flat and very fertile, with much beautiful scenery, especially around Como, Garda and other lakes. Its chief rivers are the Po, the Oglio and the Ticino. Named after the Lombards, it was ruled by the dukes of Milan, but later passed to Spain and then to Austria. In 1859 it was given to Sardinia and in 1861 was included in the new kingdom of Italy.

Lombardy Poplar Tall ornamental tree of the willow order (*Populus fastigiata*). Inhabiting Persia and N.W. India from remote ages, reaching 100-150 ft., Lombardy apparently received it in post-classical times, and it spread thence. Its thin, erect branches occasion a cypress-like aspect much appreciated as a contrast to flatter vegetation. It has no economic value.

Lombok Island of the Dutch East Indies. It lies to the east of Java and covers 3060 sq. m. On it are some high mountains, but the soil in the valleys is fertile and produces rice, maize, tobacco, etc. Mataram is the chief town. It is governed from the island of Bali, separated from it by the Strait of Lombok. Pop. (with Bali), 600,000.

Lombroso Cesare. Italian scholar. Born at Verona, Nov. 18, 1836, he studied medicine, and in 1862 was made Professor of Mental Diseases at Pavia. Later he was director of an asylum at Pesaro and Professor of Forensic Medicine at Turin. He died Oct. 19, 1909.

In 1876 Lombroso published a book, *L'Uomo*

Delinquente, which started the science of criminology and on which his fame rests. Later came *The Man of Genius*, *The Female Offender* and *Crime, its Causes and Remedies*. These have been translated into English. He also wrote on spiritualism.

Lome Seaport of Togoland, the capital of the French colony. There are facilities for shipping. Formerly under German rule, on Aug. 7, 1914, it was taken by the British.

Lomond Loch or lake of Scotland. The largest in the country, it lies between the counties of Stirling and Dumbarton and covers about 27 sq. m. The Leven and then the Clyde take its waters to the sea. The scenery on and around the lake is very beautiful, and it is much visited by tourists. On the loch are many islands, the largest being Inchmurrin. Ben Lomond overlooks the lake on the east side.

London Capital of England and of the British Empire, also a seaport and a financial, manufacturing and trading centre. It stands on the Thames, the city proper being on the north bank. It covers a good part of the County of Middlesex and extends into Surrey, Kent, Hertfordshire, Essex and Buckinghamshire.

The original London, still called the City, occupies about a square mile (677 acres) on the north side of the river. Around it is the County of London, created in 1899, consisting of the city and 28 other boroughs, and covering 116 sq. m. Outside this is another district vaguely called Greater London. The boundaries of this are uncertain and it is continually extending. It may be regarded as the district within a radius of 15 m. each way from Charing Cross, covering something like 700 sq. m. The area served by the Metropolitan Water Board covers 574 sq. m.

London possesses many buildings of historic and other interest, among them St. Paul's Cathedral, Westminster Abbey, Southwark Cathedral, the Roman Catholic Cathedral at Westminster, the Temple Church and St. Margaret's, Westminster. The Houses of Parliament are a fine pile overlooking the Thames, and near is the hall of the London County Council. The Tower of London is unique. Buckingham and St. James's palaces are in the heart of London. On its outskirts are Kew and Hampton Court palaces; Kensington is midway; Lambeth and Fulham are episcopal palaces. Greenwich and Chelsea hospitals and the group of buildings in and around the Temple have great historic interest.

The headquarters of the Bank of England, the Guildhall, the Mansion House, the Charterhouse and other historic buildings are in the city. The principal theatres are near Charing Cross. Other places of amusement include the Crystal Palace, Madame Tussaud's in Baker Street, and various fine cinema halls in and around Leicester Square and the Strand.

The largest of the central open spaces is Hyde Park and near it are the Green and St. James's parks. Richmond Park and Greenwich Park are crown property, and Hampstead Heath is the largest of scores of open spaces under the control of the London County Council. In Regent's Park are the zoological and botanical gardens. A series of bridges cross the Thames, the lowest being the Tower Bridge, below which are the docks for the shipping controlled by the Port of London Authority.

Although the great public schools have nearly all been removed to the country, London is a great educational centre. It has a university, connected with which are colleges of every kind. The London County Council maintains hundreds of schools and many endowed schools are in the suburbs. For more specialised education there are several polytechnics.

The city of London is governed by a lord mayor and corporation, as it has been for 600 years and more. The county has a county council, comprising chairman, 20 aldermen and 124 councillors. The councillors are elected every three years. The term of office for aldermen is 6 years and 10 retire every 3 years. Outside its area are many boroughs and urban districts such as Croydon, Richmond, Walthamstow, Tottenham and others.

The greatest manufacturing and distributing city in the world, London's factories and workshops produce goods of almost every kind. Fancy goods, furniture, clothing and foodstuffs are prominent, but motor cars and other heavy articles are also made. The city of London is the headquarters of the world's financial system and in it the banks and financiers of every nation are represented.

London is the centre of the country's railway system and contains the great termini of Paddington, Waterloo, Charing Cross, Euston, Marylebone, St. Pancras, King's Cross and Liverpool Street. The electric railways are chiefly underground tubes. There are canals and the river below the Tower Bridge has tunnels for foot passengers and vehicles. There are airports at Waddon and Hanworth. London is the broadcast centre for the British Isles. London Regional broadcasts are made on a wave-length of 358 M. 50 kW.; London National on a wave-length of 261.6 M. 50.3 kW. The population of the county is (1931) 4,396,321 and of Great London, 8,202,818.

London City of Ontario. It is on the Thames, 120 m. from Toronto and is served by the two transcontinental lines, C.N.R. and C.P.R. There are a number of manufactures and here are railway repairing shops. It has two broadcasting stations (62.56 M. and 34.68 M.). Pop. 66,100.

London Declaration of. International naval agreement. It was drawn up at a conference held in London in 1908-09 and dealt with the law about blockade and other matters that arise in time of war. All the great naval powers signed it, but as it had not been ratified when the Great War began, its provisions never became operative.

London Port of. Term used for the part of the Thames used as a seaport. It is controlled by a body called the Port of London Authority, which has its office in Trinity Square, E.C.3. It consists of a chairman, vice-chairman and members chosen by various interests, such as the London County Council and the Board of Trade. It controls the tidal waterway of the Thames between Havengore Creek in Essex and Teddington.

The authority was created in 1909 when it bought the London docks from various companies for about £2,000,000. It has added to these and the dock area is now about 2500 acres. The largest docks are the Surrey Commercial, the West India, the Millwall, the East India, the Royal Victoria and Albert, the King George V. and those at Tilbury.

London University of. Educational centre in London. It was founded in

1836 and was at first an examining body only. Later it became a teaching body also and in 1900 it was reorganised. The university consists of 36 colleges and schools, the chief being University College, Gower Street, and King's College, Strand. Others are the Imperial College of Science and Technology, the London School of Economics, Birkbeck College, East London College, Bedford College and the Royal Holloway College. Recent additions are the Constauid Institute of Art and the Institute of Historical Research. The organisation also includes several medical schools and theological colleges. It is governed by a chancellor, and vice-chancellor, chairman of convocation and senate. The headquarters are in the Imperial Institute, South Kensington, but new buildings are planned on a site in Bloomsbury. The university has athletic grounds at Motspur Park, near Worcester Park, Surrey.

London Jack. American novelist. Born in San Francisco, Jan. 12, 1876, he started upon a career of adventure by digging for gold in Klondike. Afterwards he travelled over a good part of North America on foot, worked as a seaman and, in 1904-05, London served as a war correspondent in Manchuria. About 1900 he began to write and his books became very popular. He put into them much of his own adventurous career and a remarkable knowledge of certain forms of animal life. They include *A Daughter of the Snows*, *The Call of the Wild*, *White Fang*, *Martin Eden*, *The Mating of the Elsinore* and *Night Born*. He died Nov. 22, 1916.

London Gazette The. Official organ of the British government. It appears twice a week, on Tuesday and Friday, and contains proclamations and official announcements generally. For Scotland a similar purpose is served by *The Edinburgh Gazette*, and for Northern Ireland by *The Belfast Gazette*.

London Museum Collection of objects relating to the history of London. The objects are arranged in chronological order and begin at very early times. They cover every phase of London life, not excluding dress, toys and the like. The Museum was founded in 1912 and is housed in Lancaster House, presented to the nation by the 1st Viscount Leverhulme.

Londonderry County of Northern Ireland. In the province of Ulster, it has a coastline on the north and covers 816 sq. m. The land is fairly level except in the south. The Roe, Foyle and Bann are the chief rivers. The chief town is Londonderry. Other places are Coleraine, Limavady and Dungiven. Castlerock, Port Stewart and Downhill are watering places. The old name of the county was Derry, still frequently used. London was prefixed to it in 1609 when the corporation of the city acquired large estates therein. Pop. (1926) 94,511.

Londonderry City, seaport and market town of Co. Londonderry, Northern Ireland, also the county town. It stands on the Foyle where it falls into Lough Foyle, 95 m. from Belfast. There are some industries, among them flour milling, bacon curing and linen manufacturing, but shipping also is important. From here produce is sent to the ports of England and Scotland.

Derry, as it is called, is a city of great historic interest. It was a fortified town and its gates and walls still stand. The chief event in its history is the heroic defence against the

troops of James II. in 1689, an event still commemorated in the city. Pop. (1926) 45,159.

Londonderry Marquess of. British title held by the family of Vane-Tempest-Stewart. In 1789 Robert Stewart, an Irish landowner, was made a baron and in 1816 Marquess of Londonderry. His son was the politician known as Viscount Castlereagh (q.v.), who became the 2nd marquess. His half brother, Charles William, the 3rd marquess, married the heiress of the families of Vane and Tempest and secured their estates in Durham and Yorkshire. Frederick William, the 4th marquess, who succeeded in 1854 had been an M.P. for over 20 years.

In 1884 Charles Vane-Tempest-Stewart became the 6th marquess. He was Lord Lieutenant of Ireland, 1886-89, and as a Unionist politician was Postmaster-General, 1900-02, and President of the Board of Education, 1902-05. He died Feb. 8, 1915, when his son, Charles Henry, became the 7th marquess. He was an M.P., 1906-15. In 1921 he became Minister of Education for Northern Ireland, a post he held until 1926. In 1928-29 he was in the Unionist ministry as First Commissioner of Works and in 1931 he became Secretary for Air in the national government. The seats of the marquess are Wynyard Park, Durham, and Mount Stewart, Co. Down. His eldest son is called Viscount Castlereagh.

London Pride Hardy perennial herb of the saxifrage order, native in Ireland and S.W. Europe (*Saxifraga umbrosa*). Naturalised throughout Britain, an old favourite in cottage-gardens and rockeries, especially in moist situations, its rosettes of tough, ovate, coarsely-toothed, stalked leaves, 4-12 in. across, surround a single leafless 6-12 in. stalk bearing small white ½ in. flowers, sometimes red-spotted.

London Stone Fragment of an ancient carved stone preserved in the wall of S. Swithin's Church, Cannon Street, London. It is supposed to be a portion of a Roman *milliarium*, or the centre from which distances were measured on the roads in Roman Britain. In support of this hypothesis there is, however, no direct evidence.

Long Lake or loch of Scotland. It is a sea loch, opening on the west coast between the counties of Argyll and Dumbarton. It penetrates for 17 m. into the land.

Long Viscount. English politician. Walter Hume Long was born July 13, 1854, at Bath, was educated at Harrow and Christ Church, Oxford, and inherited estates in Wiltshire. He began his parliamentary career in 1880 as Conservative member for North Wiltshire, and although he changed his constituency several times, he retained his seat in the House of Commons until 1921, when he was created a peer. He was President of the Board of Agriculture, 1895-1900 and of the Local Government Board, 1900-05. In 1905 he was for a short time Chief Secretary for Ireland. In 1915, under the Coalition Ministry, he was again President of the Local Government Board, in 1916 Colonial Secretary, and in 1919-21 First Lord of the Admiralty. He died Sept. 26, 1924, having been created Viscount Long of Wraxall in 1921. He lost his elder son, Brig.-Gen. Walter Long, C.M.G., D.S.O., in the Great War, and was succeeded in his title by his grandson.

Longbenton Urban district of Northumberland, also known

as Benton. It is 4 m. from Newcastle and 273 m. from London by the L.N.E. Rly. Here are stone quarries and coal mines. Pop. (1931) 14,072.

Longchamps Racocourse of Paris. It is in the Bois de Boulogne and here the race called the Grand Prix is run. There are slight remains of an abbey here.

William de Longchamps was chancellor of England in the time of Richard I. He died Jan. 31, 1197.

Longcloth Plain cotton fabric. It was woven originally in long pieces, hence its name. Longcloth usually is bleached and is of heavier quality than cambric. It is used chiefly for making shirts and underclothing, the lower grades being woven from American cotton and the finer qualities from the best Egyptian cotton.

Long Eaton Urban district and market town of Derbyshire. It is 7 m. from Nottingham, on the L.M.S. Rly. The town is a centre of the lace manufacture and has engineering works and other industries. Pop. (1931) 22,339.

Little Eaton is a village 3 m. from Derby, on the L.M.S. Rly.

Longfellow Henry Wadsworth. American poet. Born at Portland, Maine, Feb. 27, 1807, the son of a lawyer, he was educated at Bowdoin College, New Brunswick. There, in 1829, he became Professor of Languages, after three years' study in Europe. In 1836 he moved to Harvard to become Professor of Modern Languages and Belles-Lettres. There he remained until 1854 when he retired. He died at Cambridge, Mass., March 24, 1862.

Longfellow is America's most popular poet, and enjoyed almost equal popularity in Britain. He excelled in narrative poems, expressed in simple and exquisite language. His greatest work is probably the unique *Song of Hiawatha*, *Evangeline* and *The Golden Legend* coming next. *Tales of a Wayside Inn* may also be mentioned. His short poems include such favourites as *A Psalm of Life*, *Excelsior* and *The Village Blacksmith*. He translated Dante's *Divine Comedy* and pieces from German poets.

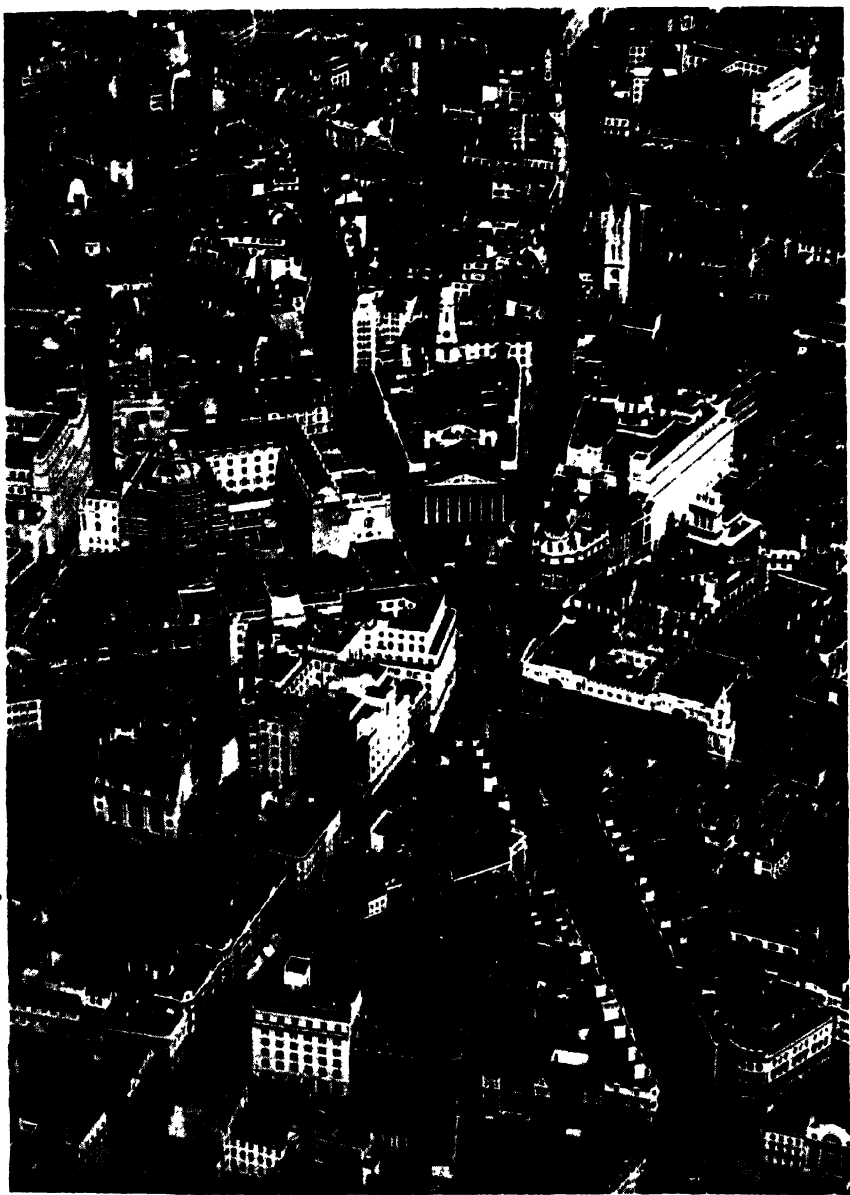
Longford County of the Irish Free State. In the province of Leinster, it covers 420 sq. m. The Shannon forms its western boundary. Longford and Granard are the chief towns. The soil is fertile except in the north where there are bogs; cattle and horses are reared. The Royal Canal passes through the county. Pop. (1926) 39,877.

The title of Earl of Longford has been borne since 1785 by the family of Pakenham. The fifth earl was killed in Gallipoli in 1915. The Earl lives at Pakenham Hall in Westmoath and his eldest son is called Lord Silchester.

Longford Market and county town and urban district of the county of the same name, Ireland. It is 75 m. from Dublin, on the River Camlin and is served by the Gt. Southern Rlys. Here are tanneries and corn mills. Pop. 3760.

Longford Village of Wiltshire. It is on the River Avon, 3½ m. from Salisbury. Here is a castle built in the 16th century and restored in the 19th. It contains a wonderful collection of pictures and is the seat of the Earl of Radnor.

Longhorn English breed of cattle with long down-curved or up-



THE CITY FROM THE AIR.—The heart of the London business world centred round the pillared Stock Exchange, with the Bank of England left centre and the Mansion House on the right, below centre.

[Aerofilms

turned horns. Especially developed in 18th-century Leicestershire they became widespread in Britain, being gradually displaced as short-horns improved. The prevailing colour is black or brown, with a white stripe down the back. They are good beef cattle, and the cows fair milkers.

Long Island Island of the United States. It lies close to the east coast and is part of the state of New York. The East River divides it from Manhattan on which the city of New York stands, and Long Island Sound is an opening on its north side. It is 118 m. long and covers 1680 sq. m. Long Island has become practically a suburb of New York. On it are Brooklyn, which is part of the city, also Coney Island and other pleasure resorts. It contains golf courses, race-courses, country clubs, motor tracks, and aviation grounds. Some part of it is cultivated, but much of it is woodland. It has two broadcasting stations (62.5 M. and 34.68 M.).

Longitude Term applied to the angular distance of the meridian of a place from some given meridian. That of Greenwich Observatory is the usual one adopted. For geographical purposes the earth's surface is divided into circles of longitude, and distances in degrees are numbered east or west of the meridian of Greenwich.

Longleat Residence of the Marquess of Bath. It is in Wiltshire, 3 m. from Warminster, and is one of the finest houses in the country. It is in the Italian style and dates from the 16th century, but additions were made in the 19th. Features of the house are the hall and a picture gallery which contains a priceless collection of portraits.

Long Parliament Name used for the parliament that carried on the Civil War. It met on Nov. 3, 1640, and was responsible for the policy that led to the war, for the appointment and dismissal of the generals and the execution of the king. It instituted many constitutional changes, but most of them were temporary only. In 1649 the Presbyterian members were expelled, but the others remained sitting until April, 1653, when Cromwell turned them out. In May, 1659, the surviving members were again called together and the parliament sat until dissolved on March 16, 1660. William Lenthall was speaker of the parliament from 1640 to 1653. The acts of the Long Parliament after 1642, being unconstitutional, are not on the statute book.

Longport Variety of English chinaware. It takes its name from Longport, near Burslem, where it was made in the 18th and 19th centuries. It is a porcelain with a hard transparent body beautifully decorated.

Longridge Urban district of Lancashire. It is 7 m. from Preston, on the L.M.S. Rly. The main industry is cotton spinning. Pop. (1931) 4158.

Longton District of Stoke-on-Trent. On the L.M.S. Rly. it is a centre of the pottery industry, and was a separate borough until it was incorporated in 1910 with Stoke-upon-Trent (q.v.).

Lonsdale Earl of. English title borne by the family of Lowther. In 1696 Sir John Lowther, a rich baronet in Cumberland, was made a viscount, but the title became extinct in 1750. His estates came to Sir James Lowther who, in 1784, was made Earl of Lonsdale, but this title became extinct

when he died in 1802. In 1807 Sir William Lowther was made Earl of Lonsdale and from him the present earl is descended. Hugh Cecil Lowther, who, in 1882, became the 5th earl, has won a great reputation as a sportsman. His seat is Lowther Castle, Penrith.

Lonsdale Frederick. English dramatist. Born, Feb. 5, 1881, he began to write for the stage and soon became known as a dramatist. His successes include *The King of Cadonia*, *The Best People*, *Maid of the Mountains*, *The Last of Mrs. Cheyney* and *Canaries Sometimes Sing*.

Looe Urban district, seaport and watering place of Cornwall. It stands where the River Looe flows into Looe Bay, 16 m. from Plymouth, on the G.W. Rly. There is shipping and fishing; the sands and bathing are good and there is some yachting. Looe Island in the river was once famous for its smugglers. Pop. (1931) 2878.

Loofah Vegetable bath sponge. It is derived from the cylindrical fruit of various species of tropical annual climbing herbs of the gourd order, notably in Egypt and Japan. Sometimes 2-3 ft. long, a tough fibrous network encases the seeds. These having been macerated and the cuticle removed, the fibre serves as a flesh brush.

Loom Machine used for weaving textile fabrics. In the simplest form of weaving one set of threads running the whole length of the fabric and known as the warp, is manipulated so as to pass alternately over and under a crosswise set known as the weft. The simple handloom has been replaced by the power loom first introduced by Cartwright in 1785-87, and a further improvement was effected when automatic action was introduced by Jacquard, about 1801.

Looping Term in aeronautics for a manoeuvre used chiefly for display. In it, after the aeroplane has dived, it turns over in a circle or loop, the pilot sitting on the inside of the circle. In a variation of this feat, the inverted loop, the movement is in the opposite direction with the pilot on the outside.

Loos Village of France. It is 3 m. from Lens and is a coal mining centre. It was destroyed during the Great War, but has since been rebuilt.

Battle of Loos. The village gives its name to a battle of the Great War, fought Sept. 25-Oct. 13, 1915. The object of the Allies was to recover Lens and the surrounding coal mines from the Germans. The main attack was made between Lens and La Bassée, by a British and a French army, with subsidiary movements elsewhere. The advancing troops were at first very successful, Loos itself was entered by a London division and the German front was broken, but for several reasons the gains could not be held. On the next day (Sept. 26) German reserves arrived and there was some fierce fighting, which continued on the 27th. Incidents were the attack of the Foot Guards on Hill 70 and the French attempts to take Souchez. The battle proper ended on the 28th, but there was a good deal of fighting until Oct. 13. Some of the gains, including Loos, were retained by the Allies, but at a tremendous cost. The British lost perhaps 60,000 out of 250,000 engaged.

Loosestrife Perennial herbaceous plant of the order *Lythraceae*. The purple loosestrife (*L. salicaria*) is common

LORCA

on river banks and in marshy places. It is 4 or 5 ft. in height with branching stems, lance-shaped leaves and spikes of brilliant purplish flowers. Another variety is *L. vulgaris* which bears clusters of yellow flowers.

Lorca City of Spain. It is 41 m. from Murcia and has some old buildings, including a Moorish castle. Lead and silver are found in the neighbourhood. Murcia is a manufacturing and trading centre, and around the old town are modern suburbs. Pop. 74,700.

Lord Title of honour. In Great Britain it is used for all peers; earls, viscounts and barons are addressed informally as Lord so-and-so. Another kind of lords are the law lords, who hold life peerages. Bishops as lords of parliament are also addressed as "my lord."

In Scotland judges of the upper house of the court of session are known as lords, although they do not sit in Parliament, and the younger sons of dukes and marquesses are addressed as lord with the Christian name. Lord of the manor is a territorial distinction, not a title; a variant is the Scottish laird. The feminine of lord is lady.

Lord Advocate Chief law officer of the crown in Scotland. He is usually an advocate of distinction and corresponds to the attorney-general in England. He is a member of the ministry, usually with a seat in the House of Commons. His office is in Edinburgh and he is responsible for public prosecutions in Scotland.

Lord Chamberlain Officer in the royal household of Great Britain. He has charge of the king's household above stairs and ranks immediately next to the lord steward. He is invariably a peer, and until the time of George V. was a member of the ministry. The lord chamberlain also acts as the censor of plays, a duty he took over in 1824 from the master of the revels. The symbols of his office are a white wand and a key. The queen's household also has a lord chamberlain.

Lord Chief Justice Name given to the president of the king's bench division of the high court of justice. He ranks next to the lord chancellor and is usually made a peer on appointment. A similar office exists in other English speaking countries; in the United States the supreme court is under a chief justice.

Lord Great Chamberlain

Officer of state in Great Britain. He is the sixth great officer of state, but his duties have mainly passed to others. He is the keeper of the palace of Westminster and has duties at the opening of parliament and the coronation. The office was long held by the great family of de Vere. It is now held by the Earl of Ancaster, the Marquess of Cholmondeley and the heirs of the Marquess of Lincolnshire, each acting for a reign. The Marquess of Lincolnshire was lord great chamberlain when George V. became king; on his death it was decided that his son-in-law, Viscount Lewisham, should undertake the duties.

Lord High Chancellor

High official in Great Britain. The keeper of the great seal, ranking just after the Archbishop of Canterbury, he is a member of the government of the day, and by virtue of his position is president of the House of Lords, both as a legislative and as a judicial body. He reads the

LORD PRESIDENT

king's speech when the king is not present and is the head of the judicial system. His duties are to advise the king about the appointment of judges and magistrates and on matters concerning the administration of justice. The office originated in very early times. See CHANCELLOR.

Lord High Steward In England a great officer of state. The office is a very old one. He was originally concerned with looking after the royal table, but now has duties only at a coronation or the trial of a peer. There is no regular holder of the office, but when either occasion arises a lord steward is chosen.

Lord in Waiting Nobleman in attendance on the king. They are six in number and take it in turns to be in attendance. Until 1924 they were members of the political party that was in power and were changed with every change of government. To-day three of them are politicians and three are not.

Lord Keeper In England, until the 18th century, one of the great officers of state. He was the keeper of the great seal and as such acted as the deputy, or assistant, to the lord chancellor.

Lord Lieutenant Official who represents the sovereign in each of the counties of England, Wales, Scotland and Northern Ireland. Formerly they raised men for defending the country and later they were given charge of the militia. When the army was remodelled in 1907 the lord lieutenant became the president of the county association of the territorial force. He is appointed for life and appoints deputy lieutenants to assist him. He is also the keeper of the records, or *custos rotulorum*, for the county. The appointment is for life. There was a lord lieutenant of Ireland until 1922.

Lord Mayor Title of the chief magistrate in London, York, and other cities of England and Wales. London has had a lord mayor since early times; he is elected every year from among the aldermen, and is usually made a baronet on retirement. During his term of office he lives at the Mansion House. The day of his installation, Nov. 9, is marked by a procession through the streets of London, called the Lord Mayor's Show, which has been held since 1215. In the evening there is the banquet at the Guildhall at which leading statesmen usually speak.

York has had a lord mayor for several centuries, but the other holders of this title have been granted it by the king since 1887. These include Birmingham, Bradford, Bristol, Hull, Leeds, Liverpool and Manchester, Norwich and Sheffield. Leicester, Nottingham, Portsmouth and Stoke were given the honour in 1928. In Scotland the corresponding title is lord provost.

Lord President of the Council. In Great Britain one of the great officers of state. He presides over meetings of the privy council, but has few other duties. He is usually a politician and a member of the Cabinet, and the custom has grown up of giving the office to a senior member of the ministry who is free to undertake duties of a general nature. In the Labour ministry of 1929-31 Lord Parmoor, leader of the Government in the House of Lords, was lord president; in the National Government formed in 1931 the

post was given to Mr. Stanley Baldwin. The salary of the office is £1800 a year.

Lord Privy Seal In Great Britain a high officer of state. He was the keeper of the king's privy seal and his duty was to affix this to the necessary documents. These were then passed on to the lord chancellor, or the lord keeper, for the great seal to be impressed upon them. These duties ended in 1884.

To-day the lord privy seal is a member of the Cabinet without departmental duties. In the Labour ministry of 1929-31, the lord privy seal was given the task of dealing with unemployment. The salary of the office, nominally £2000 a year, was then raised to £5000.

Lord's Cricket ground in London. It is in St. John's Wood, belongs to the M.C.C. (Marylebone Cricket Club) and is regarded as the headquarters of the game. Middlesex home matches are played here; also test and other important matches such as Oxford and Cambridge, and Eton and Harrow. It takes its name from Thomas Lord, who founded it in 1814.

Lords House of. Upper house of the legislature of Great Britain; also the supreme court of law. It arose from the council of barons summoned by the king to advise him on affairs of state. After a time the greater barons separated themselves from the lesser barons and the commons, and with the bishops and abbots became the House of Lords, but the term itself was not used for it until 1544.

To-day the house consists of two classes, the lords temporal and the lords spiritual. The former number some 700 and are divided into five classes, dukes, marquesses, earls, viscounts and barons. The latter consists of the 2 archbishops and 24 bishops. In addition there are a few law lords who are peers for life only.

The basis of membership is heredity. Each member, save only the bishops and the law lords, is the holder of an hereditary title, which carries with it the right to a seat in the House of Lords. Peeresses in their own right are not allowed to sit. The speaker, or chairman of the House, is the lord chancellor and his deputy is the chairman of committees. Its procedure is very like that of the House of Commons. Some members of the Cabinet sit in the House of Lords, but of late years the number of these has decreased.

For a long time the houses, Lords and Commons, were equal in power, but, in the time of Charles II., the power of the Lords over finance was definitely curtailed. In 1911, by the Parliament Act, the House was made subservient to the House of Commons. Now it can only delay, not utterly reject, legislation passed by the Commons. From time to time proposals for reforming the House of Lords, generally by introducing an elective element, have been put forward, but, so far, none has been accepted.

Lord's Day Observance Society. See SABBATH.

Lord's Prayer Model of prayer given by Jesus to his disciples (Matthew vi., Luke xi.). The Revised Version omits Matthew's doxology, a liturgical addition of Jewish origin, adopted in the 1st-2nd century *Teaching of the Twelve Apostles*. The prayer appeared in early Christian liturgies. The Anglican Prayer-book

version, with or without the doxology, follows the Great Bible of 1539.

Lord Steward Official of the royal household. He is responsible for the management of the household below stairs, i.e., all that concerns the catering and domestic arrangements of the royal residences. Until 1924 the office was held by a politician and the holder resigned with other members of the ministry. Many of the duties formerly discharged by the lord steward are now undertaken by the master of the household.

Loreburn Earl. British politician. Robert Threshie Reid was born April 3, 1846, a son of Sir J. T. Reid, and was educated at Cheltenham College and Balliol College, Oxford, where he played cricket for the university. He became a barrister, was elected Liberal M.P. for Hereford (1880) and in 1888 was returned for his own county, Dumfriesshire. In 1894 Reid was made solicitor-general and then attorney-general, but he was out of office from 1895 until 1905. In that year he was chosen lord chancellor and created a baron. In 1911 he was made an earl and in 1912 he retired from active political life. He died Nov. 30, 1923, when his title became extinct.

Loreto City of Italy. It is near the coast 15 m. from Ancona, and is a famous place for pilgrimage. The object of veneration is the Santa Casa, or "sacred house," a building said to have been the home of the Virgin Mary at Nazareth, miraculously transported here. The building is protected by a marble screen. Over it a fine Renaissance church has been built. Pop. 8000.

Loretto Scottish public school. It is at Musselburgh, 6 m. from Edinburgh, and was founded by H. H. Almond in 1861. There is accommodation for about 200 boys. The school is famous for its output of Rugby footballers and its Spartan regime.

Lorient Seaport and naval station of France. It stands on the coast of Brittany, 30 m. from Vannes, and has yards for building and repairing warships, works for making guns and armour, barracks and other establishments. Lorient was formed in 1664 by the French East India Company, hence the name, which means "the East." Pop. 40,000.

Lorimer John Henry. Scottish painter. Born at Edinburgh in 1856, the son of Professor James Lorimer, he was educated there and studied art at the Royal Scottish Academy. He began as a portrait painter, but later made a reputation with his subject pictures. In 1900 he was made a member of the Royal Scottish Academy.

Lorimer Sir Robert Stodart. Scottish architect. Born Nov. 4, 1864, he was educated at the University of Edinburgh, became an architect and won a reputation chiefly in domestic works. His later genius is well seen in the national war memorial in Edinburgh Castle and the chapel of the Knights of the Thistle in St. Giles Cathedral, Edinburgh. His honours included a knighthood (1911) and membership of the Royal Scottish Academy. He died Sept. 13, 1929.

Loriner Old name for a seller of harness and trappings for horses, also spelt lorimer. The Loriners' Company is one of the London livery companies. Its offices are at 13 S. Swithin's Lane, E.C. 4.

Lorne District of Argyllshire. It lies between Loch Awe and the sea coast. The Firth of Lorne separates it from the island of Mull. The eldest son of the Duke of Argyll is called the Marquess of Lorne.

Lorraine District of France. It is in the east of the country between Luxembourg and Alsace, and formed part of the district of Alsace-Lorraine which was a German possession from 1871 to 1919.

Lorraine owes its name to Lothair who was its first king in the 9th century. Soon it was seized by France, but later became part of Germany. It was ruled by dukes who were vassals of the German king until 1542, when one of them made himself independent. Soon, however, it passed under the control of France and its dukes were subject to the King of France. Their line died out in 1736, when Stanislaus, the exiled King of Poland and the father-in-law of Louis XV., was made duke. In 1766 he died and the duchy passed to France who retained it until 1871.

The old duchy was much larger than the present district. Until 1871 it included Nancy, which was its capital. In the early Middle Ages it included Brabant, then called Lower Lorraine. Its chief town is now Metz. Its chief river is the Moselle and it is mainly covered by the department of Moselle.

Lory Subfamily of Austromalayan brush-tongued parrots. Pigeon-sized and smaller, of brilliant plumage, sometimes broad-tailed, they have sharply-pointed wings. The purple-capped, red-tailed *Lorius domicella* of the Moluccas, with yellow gorget, fruit-eating and honey-eating, is frequently tamed for its unrivalled ventriloquism. The New Guinea black-capped lory lacks the yellow gorget.

Los Angeles City and seaport of California. In the south of the state, it is 350 m. from San Francisco and covers nearly 500 sq. m. It is well served by railways and air services and is laid out on modern lines with wide thoroughfares and high buildings in the central part. In the city is the University of Southern California. A huge stadium was erected for the Olympic Games of 1932. Water is brought by an aqueduct from the hills 230 miles away and electric light and power are generated. The city has a service of electric railways.

Los Angeles is known for its association with the film industry which is centred mainly in the districts known as Hollywood and Culver City. There is a harbour at the mouth of the river and a large trade in fruit. The manufactures include motor vehicles, while oil refining is another important industry. There are large railway shops and printing works. Pop. 1,344,000.

Lossiemouth Burgh, seaport and watering place of Moray, Scotland. It stands where the River Lossie enters the Moray Firth, 5 m. from Elgin, on the L.N.E. Rly. There is a harbour, and fishing is the principal industry. The burgh consists of three villages, Lossiemouth, Branderburgh and Stotfield. Pop. 4166.

Lost Tribes The Ten Tribes of Israel. They were carried into captivity by the Assyrian King Sargon at the fall of Samaria, 722 B.C. The other two tribes, deported to Babylon at the fall of Jerusalem, 586 B.C., returned 50 years later, but the ten disappeared from history.

Lostwithiel Borough and market town of Cornwall. It

stands on the Fowey, 21 m. from Truro, on the Gt. W. Rly. Lostwithiel was at one time a centre of the tin mining industry. The stannary courts were held here, and here was the stannary prison. Pop. (1931) 1325.

Lot Son of Abraham's brother, Haran (Gen. xiii., xiv., xix.). Accompanying his uncle from Mesopotamia, he chose as his land the Jordan valley near Sodom. The story of the flight from the doomed cities of the plain and his wife's death became a favourite warning in Jewish domestic life.

Lothian District of Scotland. It stretched from the Cheviot Hills to the Forth, and was at one time part of the English kingdom of Northumbria. In 1013 it was taken by Malcolm II., King of the Scots, and was thenceforth a part of Scotland. The Lothians now include the three counties of Linlithgow or West Lothian, Edinburgh or Midlothian and Haddington or East Lothian. The Royal Scots was formerly called the Lothian Regiment.

Lothian Marquess of Scottish title borne by the family of Kerr. In 1606 Mark Kerr, a lord of session, was made Earl of Lothian. Robert, the 4th earl, was made a marquess and from him the present marquess is descended. Philip Henry Kerr, the 11th marquess, was born, April 18, 1882, and educated at the Oratory School, Birmingham and at New College, Oxford. He was editor of *The Round Table*, 1910-16, and secretary to D. Lloyd George, 1916-21. In 1930 he succeeded a kinsman in the title. In Aug., 1931, he was made Chancellor of the Duchy of Lancaster in the National Government, but he only held office for a few weeks. He went to India as chairman of one of the committees appointed to deal with matters concerning the future government of that country. His seats are Newbattle Abbey, near Edinburgh and Bleking Hall, Norfolk. The fine library at Bleking was sold in 1931.

Loti Pierre. Name taken by the French writer, Louis Marie Julien Vland. Born Jan. 14, 1850, he entered the navy in 1867. In 1879 he appeared as a novelist, and he made a reputation in 1880 with *Le Mariage de Loti*. Many others, stories of adventure, followed, one of the most popular being *Le Pêcheur d'Islande*. Others are *Le Roman d'un Spahi*, *La Galilée* and *L'Inde (sans les Anglais)*. In 1891 he was elected to the Academy and he died, June 10, 1923.

Lotion Fluid preparation for cleansing or healing the body's outer surface. Distinct from a liniment because not oily, and from a fomentation because not hot, it is usually applied on lint. It may be antiseptic, e.g., boric acid; cleansing, e.g., black-wash; astringent, e.g., Goulard's water; soothing, e.g., baking soda; cooling, e.g., vinegar and water.

Lottery Award of money or other prizes as the result of lot or chance. Since 1826 lotteries have been illegal in Great Britain: before that time they were used to obtain money for the state, as they still are in several European countries. Sweepstakes and raffles come under the heading of lotteries, and are, therefore, strictly speaking, illegal in Great Britain, though not in the Irish Free State. A competition is a lottery only if chance is the deciding factor in awarding the prizes. Most of the competitions conducted by the newspapers and periodicals are arranged so that they contain an element of skill and are therefore, technically, legal.

Lotus Classical name of various plants. It includes the jujube-tree associated with the lotus-eaters, and the sacred water lilies, *Nymphaea lotus*, of Egypt and *Nelumbium speciosum* of India.

The lotus is also the name of a large cosmopolitan genus of leguminous herbs and undershrubs. Four British species include the yellow bird's foot trefoil, sometimes red-streaked, of which a cultivated double-flowered form occurs.

Loubet *Emile*. French statesman. Born, Dec. 31, 1838, at Marsanne, he was the son of a small farmer who was, for many years, mayor of the town. He became a lawyer at Montélimar and soon took part in local affairs. In 1876 he was elected a deputy and in 1885 he was made a senator. Having been Minister of Public Works, 1887-88, he became Premier in 1892. In 1895 he was elected President of the Senate and from 1899 to 1906 he was President of the Republic. He died Dec. 20, 1929.

Loudoun *Earl of*. Scottish title. In 1633 John Campbell was created Earl of Loudoun. James Mure Campbell, the 5th earl, died in 1786, when the title passed to his daughter, Flora, who later married the Marquess of Hastings. Until 1863 the earldom was held by succeeding Marquesses of Hastings. In 1868 the marquessate became extinct, so the earldom of Loudoun passed to a woman, as it did again in 1920 when Charles Edward Hastings, the 11th earl, died.

Loudoun is a parish near Kilmarnock in Ayrshire. Therein is Loudoun Castle, the old seat of the earls and countesses.

Loud Speaker Apparatus for converting the electric energy in a wireless receiver into generally audible sound vibrations. Two main types are made, the cone type being a megaphone attachment to a telephone, the moving-coil type having permanent magnets between which the coil carrying the current moves. Loud speakers are used in broadcast reception and generally for announcements in public.

Lough Word used in Ireland for a lake, or loch. There are both inland loughs, as Lough Neagh, and loughs that are arms of the sea, as Carlingford Lough.

Loughborough Borough and market town of Leicestershire. It stands on the Soar, 10 m. from Leicester and 110 from London, on the L.N.E. and L.M.S. Rlys. The war memorial is a bell tower in Queen's Park with a fine carillon. The chief industries are the making of hosiery and electrical goods and bell founding. Pop. (1931), 26,945.

Loughrea Market town of Co. Galway, Irish Free State. It stands on Lough Rea, 118 m. from Dublin, on the G.S. Rlys., and has a trade in agricultural produce. Pop. 2800.

Loughton Urban district of Essex. It is 12 m. from London, on the L.N.E. Rly. In former times the inhabitants had the right to cut firewood in Epping Forest, which adjoins the town, and the Lopping Hall, built in 1883, is a reminder of this practice. Loughton Hall stands on the site of a famous Tudor mansion. Pop. (1931), 7390.

Louis Old French coin, in full the Louis d'or. A gold coin, it was first coined in 1640 and named after Louis XIII. It was worth about 16s., and was coined

regularly until 1797. Later the napoleon of 20 francs was sometimes called the Louis.

Louis Name of four rulers of the medieval or Holy Roman Empire, called by the Germans, Ludwig. Louis I., a son of Charlemagne, succeeded to a vast inheritance when his father died in 814. His reign was troubled by quarrels between his sons, who divided his realm at his death, June 20, 1840. Louis II., a son of Lothair I., was emperor from 855 to 875; and Louis III., a grandson of Louis II., from 901 to 905. He was then deposed and blinded, and lived at Arles until his death in Sept., 928.

Louis IV. was Duke of Bavaria when he was elected Emperor in 1314. He was crowned Emperor in Rome in 1328, and in spite of much opposition held his own until his death, Oct. 11, 1347.

Louis Name of eighteen kings of France. The first five were descendants of Charlemagne. The next Louis, Louis VI., called the Fat, was a king of the Capetian family. He reigned from 1108 to 1137. His son, Louis VII., reigned from 1137 to 1180. He was the rival of Henry II. of England who married his divorced wife, Eleanor of Aquitaine, and so became ruler of a good deal of France. Louis VIII., a son of Philip Augustus, reigned from 1223 to 1226. Before his accession he had invaded England, in the reign of King John. The other kings of this name are noticed separately.

Louis IX. King of France, called St. Louis. Born April 25, 1214, he was a son of Louis VIII. and Blanche of Castile. In 1226 he became king, and for a time his mother was regent. When he came of age he carried on a war against Henry III. of England, and did a good deal to strengthen the position of the throne. From 1248 to 1254 he was absent on a crusade. In the next eighteen years he won his reputation as a lawgiver and a saint, having established the Sorbonne in Paris, issued a new code of laws, set up courts of justice and effected many other improvements. In 1270 he went on his second crusade, but as soon as he reached Tunis he died of the plague, Aug. 25, 1270. In 1290 he was canonised and his life was written by the historian Jean de Joinville.

Louis X. King of France. A son of Philip IV., he was born Oct. 4, 1289. In 1314 he became king, but he only reigned for two years as he died June 3, 1316. His successor was his brother, Philip V.

Louis XI. King of France. A son of Charles VII., he was born at Bourges, July 3, 1423. In 1461 he became king and reigned for 22 years. At home he did a great deal to make the crown stronger and the nobles weaker; abroad he was occupied with wars and intrigues with Charles the Bold and Edward IV. of England. In 1468 he was taken prisoner by Charles, but released three days later.

Louis has won fame as one of the craftiest of kings, using cunning rather than arms to discomfit his foes. In his later years he became very superstitious and lived in retirement at Plessis les Tours. He died there Aug. 30, 1483. His successor was his son, Charles VIII. Louis is pictured by Scott in *Quentin Durward*.

Louis XII. King of France. A son of Charles, Duke of Orleans, he was born in 1462. He became Duke of Orleans, married a daughter of Louis XI.,

and took some part in politics and in war. Later he was recognised as heir to the childless king Charles VIII., whom he succeeded in 1499. Louis reigned for 15 years, some of which were spent warring in Italy, where he conquered, but could not hold, a good deal of the country. He died Jan. 1, 1515, having gained the title of father of his people. Louis married, as his second wife, Anne, Duchess of Brittany, and as his third, Mary, daughter of Henry VII. of England. He left no sons, and his successor was Francis I.

Louis XIII. King of France. A son of Henry IV. and Mary de' Medici, he was born Sept. 27, 1601, and became king nine years later. For some years his mother acted as regent, but in 1617 he himself took control. His personal reign of over 25 years was overshadowed by his minister, Richelieu, who took office in 1624 and henceforward directed the affairs of state, and was disturbed by risings of the Huguenots, which were put down firmly, and by intrigues against Richelieu, engineered by the king's brother Gaston, Duke of Orleans. In its later period France went to help the Protestants in the Thirty Years' War. Louis married Anne, daughter of Philip III. of Spain. Their sons were Louis XIV. and Philip, Duke of Orleans. He died May 14, 1643.

Louis XIV. King of France. A son of Louis XIII. and Anne of Austria, he was born Sept. 5, 1638, and began to reign in May, 1643. He reigned for the long period of 72 years, and was by far the most prominent figure in the Europe of his day, exercising enormous influence, not only upon politics, but also upon art, literature and fashion. During the earlier part of his reign he greatly extended the area of France, although in 1697 and 1713 he was obliged to return many of his gains. He had a great sense of his own importance, surrounded himself with pomp and was called "le roi soleil" and "le grand monarque." He built Versailles and other splendid edifices. Louis married Maria Theresa, an Austrian princess, and after her death Madame de Maintenon. His son and his grandson died before him, and he was succeeded by his great-grandson Louis XV. He died Sept. 1, 1715.

Louis XV. King of France. A son of Louis XIV. Louis, Duke of Burgundy, who was a grandson of Louis XIV., he was born Feb. 15, 1710. In 1715 he succeeded his great-grandfather on the throne, and he reigned over France for nearly 60 years. His reign began with the making of peace, but for much of it France was at war with Great Britain and other European powers. Weak and sensual the king exercised little influence on affairs of state, so contributing in a negative fashion to the revolution. In 1725 he married Maria Leszczyńska, a daughter of the exiled King of Poland, but he had also many mistresses, notably Madame de Pompadour. He was called the well beloved (*bien aimé*) because, when he was ill in 1744, the people showed great concern. He died May 10, 1774, and was succeeded by his grandson.

Louis XVI. King of France. Born at Versailles, Aug. 23, 1754, he was a son of the dauphin Louis and a grandson of Louis XV. In 1765 his father died, and in 1773 he succeeded his grandfather as king. Four years before he had married Marie Antoinette, a member of the great Hapsburg family and a daughter

of Maria Theresa, the empress. He began to reign at an unfortunate time. The state of the country gradually became worse, and in 1789 the revolution began and he had to pay for the sins of his fathers. In June, 1791, he escaped from Paris to Vincennes, but he was captured and brought back. From then until Sept., 1792, he reigned as a constitutional king, but the office was then abolished and Louis was put upon his trial. He was found guilty and guillotined as Louis Capet, Jan. 21, 1793. The king left a son, known as Louis XVII., and a daughter.

Louis XVII. King of France, but in name only. A son of Louis XVI., he was born March 27, 1785. In 1789 he became dauphin on the death of his elder brother. He was put in prison with the other members of the royal family, and kept there after the execution of his parents. He was reported to have died in the Temple, Paris, then a prison, June 8, 1795, perhaps of poison, but some thought the report was untrue. Several pretenders came forward, claiming to be the dauphin, the most notable a German, Karl Wilhelm Naundorff, who appeared in France in 1833. He died in 1845.

Louis XVIII. King of France. He was born at Versailles, Nov. 17, 1755, and was a son of the dauphin Louis and a grandson of Louis XV. At the outbreak of the Revolution he expressed some sympathy with the new order, but after the capture of his brother, Louis XVI., he escaped from the country. In 1795, when the dauphin, nominally Louis XVII., died, he proclaimed himself king, but it was an empty title only. He lived a life of hardship and sometimes went until 1807, when he settled in England. In 1814 Louis, as the head of the Bourbons, was recalled to France and became king, but was soon forced to flee; in 1815, however, he returned and reigned until his death, Sept. 16, 1824. His successor was his brother, Charles X.

Louis Name of three kings of Bavaria, also known as Ludwig. Louis I., a son of the first king, Maximilian Joseph, was born Aug. 25, 1786. He became king in 1825 and ruled, on the whole wisely, until compelled to abdicate in 1848. He died Feb. 28, 1868. One of his sons was King Maximilian II. Another was Otto, King of Greece.

Louis II., a son of Maximilian II., was born Aug. 25, 1845, and became king in 1864. Interested in art and music, he neglected affairs of state. He was the patron of Wagner, and spent enormous sums of money on buildings to carry out the great composer's ideas. Later his mind gave way, and in 1886 a regent was appointed. Three days later the king and his medical attendant were drowned.

Louis III., a son of the regent, Luitpold, was born Jan. 7, 1845. In 1912 he succeeded his father as regent for the insane king Otto, and in 1913 Otto was deposed and Louis became king. He reigned until compelled to abdicate in 1918, and died Oct. 21, 1921.

Louisburg Seaport of Cape Breton Island, Nova Scotia. It has a railway station and is 40 m. from Sydney. There is a good harbour and fishing is an industry.

In 1714, when the French surrendered Nova Scotia to Great Britain, they kept Cape Breton and on it built a great fortress which they called Louisburg. In 1745, after a long siege, this was taken by the British, but it was

restored in 1748. In 1758 it was again taken by the British with a combined army and fleet, and this time it was destroyed.

Louise Name of two British princesses. One was the fourth daughter of Queen Victoria. Born March 18, 1848, in 1871 she married the Marquess of Lorne, afterwards 9th Duke of Argyll. He died in 1914. The princess is childless.

Another Princess Louise was the eldest daughter of Edward VII. She was born Feb. 20, 1867, and married in 1889 the Duke of Fife, who died in 1912. Known as the Princess Royal, she died Jan. 4, 1931, leaving two daughters.

Louisiana State of the United States. It covers 48,500 sq. m., and has a coastline on the Gulf of Mexico of some 1500 m. Baton Rouge is the capital, but New Orleans is the largest town. It is a fertile area, although liable to floods in the S. where there are many swamps. Cotton, rice and sugar are grown, and there are vast forests. The fisheries are valuable, and there are rich sulphur mines. The state is governed by a legislature of two houses and sends eight representatives and two senators to Congress. It became a state in 1812. Pop. 1,798,500.

Louisiana is the name given by the French to a great district which they acquired in 1682. It included the whole of the central part of the present United States, from the Great Lakes to the Gulf of Mexico and from the English colonies to the Rocky Mountains, Texas being excluded. In 1763 it was ceded partly to Great Britain and partly to Spain, but in 1800 the Spanish portion, lying to the W. of the Mississippi, was given back to France. In 1803 this area, over 1,100,000 sq. m. in extent, was sold by France to the United States for £3,000,000.

Louis Philippe King of the French. Born Oct. 6, 1773, he was the eldest son of the Bourbon, Philip, Duke of Orleans, known as Egalité. When the French Revolution began he followed his father in renouncing his titles and joined the revolutionary army. In 1794, however, having displeased the authorities, he fled from the country, and until the restoration of 1815 lived in Switzerland, the United States and England. In 1815 he returned to France, and in 1830 on the deposition of Charles X., was chosen King of the French. He was known, partly owing to his homely ways and partly to his declared opinions, as the Citizen King. At first his rule was successful, but gradually he became unpopular, and unwise repressive measures added to his enemies. The trouble came to a head in 1848 when the king abdicated and fled to England. He lived at Claremont, Surrey, until his death, Aug. 26, 1850. His only surviving son was known as the Comte de Paris.

Louisville City of Kentucky, United States. It stands on the Ohio, 110 m. from Cincinnati, and is an important railway junction. There are many manufactures, including tobacco, while the shipping is important, as Louisville is a great river port with extensive docks. Formerly a settlement known as "The Falls of the Ohio," it became a town in 1780 and was named after Louis XVI. of France. Pop. 234,891.

Lourdes Town of France. It is on the Adour in the district of the Pyrenees, 22 m. from Pau. It is famous for

its grotto, visited every year by thousands of pilgrims, as it contains a spring reputed to possess miraculous powers of healing. The buildings include the basilica, the chapel of the rosary and a hospice for pilgrims. Over-looking the town is a chateau. The pilgrimages began in 1858 when the Virgin appeared to a peasant girl. It is said that about 500,000 persons visit the shrine each year, and many cures have been reported. Emile Zola's great novel *Lourdes* deals with the pilgrimage. Pop. 8300.

Lourenço Marques City and sea port of Portuguese East Africa and capital of Mozambique. It is on Delagoa Bay, 347 m. from Pretoria, and is the nearest outlet for the produce of the Transvaal. There is a large harbour and extensive docks. The city has a botanic garden. Pop. 13,350.

Louse Name denoting unrelated groups of small invertebrate animals, especially: (1) wingless parasitic suctorial bugs infesting the hair of human and mammalian hosts; (2) another wingless order having biting mouth-parts, parasitic on birds and mammals, called bird-lice; (3) degraded parasitic crustaceans called fish-lice and whale-lice; (4) plant-sucking bugs and their larvae, called plant-lice. See WOODLOUSE.

Lousewort Large genus of herbs. Mostly perennial, of the fl. order, they are natives of N. temperate regions (*Pedicularis*). Parasitic on roots, the common British heath lousewort, *P. sylvestris*, so-called because long supposed to encourage lice in browsing sheep, bears rose-coloured, two-lipped flowers. The marsh lousewort, *P. palustris*, is an annual, with dull-pink flowers.

Louth County of the Irish Free State. It is in Leinster with a coastline on the Irish Sea, and its area is 316 sq. m. Dundalk is the county town; another town is Drogheda, while Carlingford and Greencore are coastal towns. The Boyne forms its southern boundary, and is the only navigable river. There are hills in the N., but the surface is usually flat and the soil fertile. Agriculture is the chief industry. The county contains the famous ruins of Monasterboice. It takes its name from a village near Dundalk, once a place of importance. Pop. (1926), 62,739.

Louth Borough and market town of Lincolnshire. It is 31 m. from Lincoln and 141 from London, on the L.N.E. Ry. The town is an agricultural centre and has works for making agricultural implements; other industries are brewing, malting and milling. Near are the ruins of a Cistercian abbey. Pop. (1931), 9678.

Louvain City of Belgium. It is on the Dyle, 19 m. from Brussels, has some industries and is a railway junction. It contains some of the finest buildings in Belgium, notably the Hotel de Ville, which was unharmed during the German occupation. The cathedral, however, was damaged, but has been restored.

Louvain is chiefly famous for its university, founded in 1423 and long one of the chief intellectual centres of Europe. Its chief glory was its library, which was burned down in Aug., 1914, the books and manuscripts lost being irreplaceable. It has been rebuilt by the U.S.A. and the library furnished with gifts from universities and learned societies all

over the world. The new building was opened in 1928. Pop. 40,000.

Louvre The. Museum and art gallery in Paris, probably the richest in the world. The building stands on the right bank of the Seine and was long one of the chief palaces of the kings. Built on the site of an older palace, the present building was begun in the 16th century by Francis I. and added to by Louis XIV and Napoleon. The famous Apollo Gallery was rebuilt, 1845-51, and in 1906 two new galleries were added.

The palace has been a museum since the time of Napoleon, who brought here many of the works of art he collected during his campaigns. The richness of the collection defies description. The paintings and sculptures are representative of the art of almost every age and school. The pictures include Leonardo da Vinci's "Mona Lisa" and "The Virgin of the Rocks." The sculptures include the "Venus of Milo" and the "Winged Victory of Samothrace."

Lovage Genus of smooth perennial umbelliferous herbs (*Ligusticum*) natives of N. temperate regions. Scotch lovage, *L. scoticum*, also found in Northumberland and N. Ireland, on rocky coasts, with small white or pink flowers, has a stout, branched, aromatic and pungent rootstock; its much-divided leaves are eaten as a pot-herb.

Lovat Lord. Scottish title held by the family of Fraser. Hugh Fraser, the 1st lord, lived in the 15th century, and owned vast lands in the county of Inverness which passed to his descendants. When Simon Lovat, the Jacobite, was executed in 1747, the title and estates were forfeited, but they were restored to his son, Simon. In 1815 the title became extinct, but the estates passed to a distant relative and in 1837 their owner was created Baron Lovat with the precedence of the earlier title.

Simon Joseph Fraser, who in 1887 became the 14th baron, was born Nov. 25, 1871. For service against the Boers he raised Lovat's Scouts, and he served in France and Gallipoli during the Great War. His seat is Beaufort Castle, Beaulieu, around which are his large estates.

Lovat Lord. Scottish nobleman. Simon Fraser, 12th Baron Lovat, was born about 1667, a grandson of the 7th baron and a cousin of the 10th. For his outrageous treatment of his wife, a daughter of the house of Argyll, he was prosecuted by her kinsfolk, but escaped and lived in France as a Jacobite. In 1715 he helped the government and was pardoned, and later secured the family estates, and had his title confirmed. In 1745 he sided with the Jacobites, with whom he had regularly kept in touch, and took the field. After Culloden he was captured, found guilty of treason and beheaded in London, April 9, 1747.

Love Sentiment of sympathetic or pleasurable attraction felt towards certain individuals, classes or things. Though regarded as ultimately derived from the parental instinct, shared by the lower animals, it tends to acquire in man moral and spiritual elements which, in its highest expression, lack all thought of self-interest. The Christian ideal makes love to man the unvarying method of manifesting love to God. In the supreme synthesis of the beloved disciple, God is Love (1 John iv., 8).

Lovebird Name denoting various small parrots who habitually perch closely together. They include the African short-tailed genus *Agapornis*, of which the rosy-faced, 6½ in. long, is a favourite cage-bird, and some tropical American and Papuan pygmy parrots. The Australian budgerigar or love-bird, *Melopsittacus undulatus*, is a long-tailed grass-parrot formerly much used for street fortune-telling.

Love-in-a-Mist (*Nigella damascena*). Annual ranunculaceous plant popular in gardens. The flowers are blue or white, surrounded by filmy leaves, giving the appearance which gives rise to the name. It is hardy and easily grown from seed which should be planted where the flowers are required to bloom, in April or May. Other names for it are Jack-in-Prison or Devil-in-a-Bush.

Lovelace Earl of. English title borne by the family of King. William King, Lord Ockham, a title given to his ancestor, Sir Peter King, the Lord Chancellor, was made Earl of Lovelace in 1838. The title is still held by his family. The earl's eldest son is called Viscount Ockham.

Lovelace Richard. English poet. A son of Sir William Lovelace, he was born at Woolwich in 1618. In 1642 he was put in prison for a political offence. Later he fought on the Royalist side in the Civil War, and served in the French Army, then came back to England where he was again in prison in 1648-49. He died in London in poverty in 1658.

Love-Lies-Bleeding (*Amarantus*). Annual plant bearing red flowers on long drooping stems. Prince's feather (*Amarantus hypochondriacus*), of the same genus is of slightly taller growth with red flowers borne on an erect stem. It grows to a height of 2 or 3 ft.

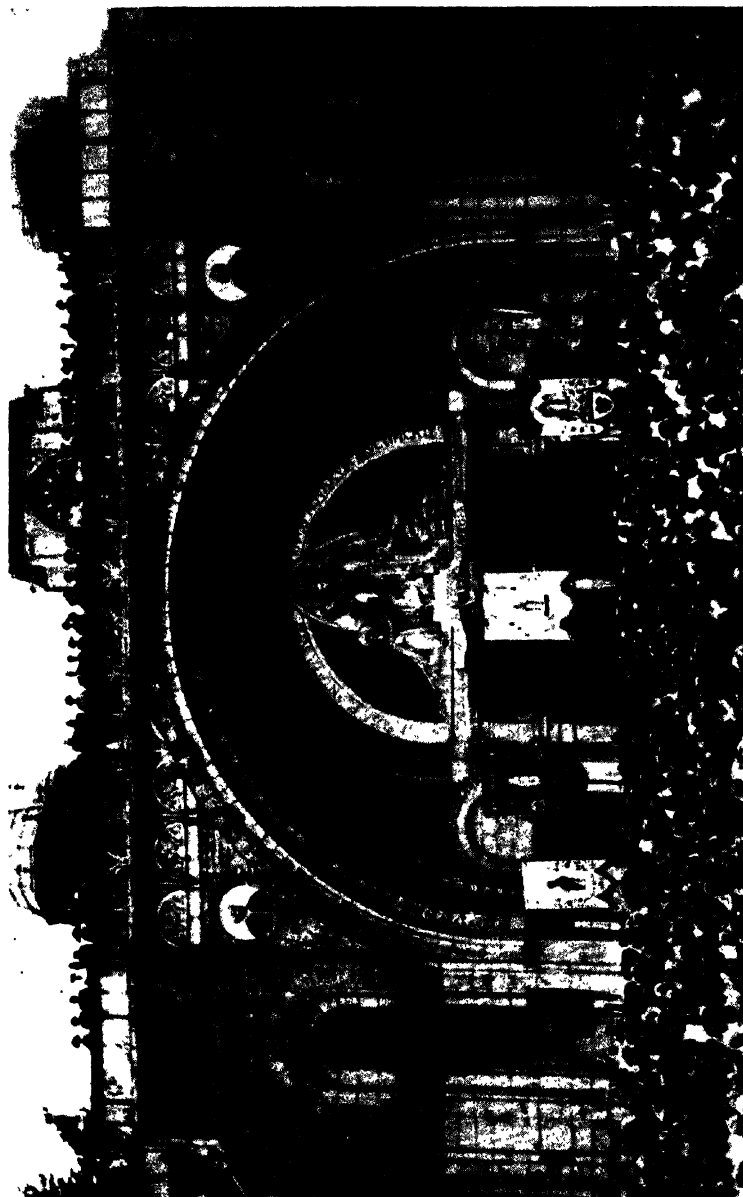
Loving Cup Drinking vessel ceremoniously passed from hand to hand at state and civic banquets. Like the grace cup of university gatherings, it is often a gold or silver-gilt chalice or goblet, with or without cover, sometimes many-handled. It appears at mayoral and livery-company banquets in the city of London and elsewhere.

Low Countries Name used for the Netherlands because of their situation, on or below the level of the sea. It includes the modern kingdoms of Belgium and the Netherlands.

Lowe Sir Hudson. British soldier. He was born in Galway, July 28, 1769, entered the army and served in Egypt, afterwards being Governor of the Ionian Islands. He served with the Prussian Army in 1814-15 and in 1815 was made Governor of St. Helena and therefore responsible for Napoleon. From 1825-31 Lowe commanded the troops in Ceylon, and he died Jan. 10, 1844.

Lowell City of Massachusetts. It is 26 m. from Boston, where the rivers Merrimack and Concord meet. An important industrial town, Lowell has manufactures of woollen goods, clothing, machinery, etc. Pop. 113,000.

Lowell James Russell. American poet. Born at Cambridge, Massachusetts, Feb. 22, 1819, he was educated at Harvard and became a lawyer, but soon left this profession to edit *The Pennsylvania*



PILGRIMS AT LOURDES.—Crowds such as gather every year to taste the healing waters of the Grotto are here seen surging before the famous Basilica with its richly carved and dignified arches. *[repeated]*

Freeman. From 1857 to 1861 he edited *The Atlantic Monthly*, and from 1862 to 1872 was part-editor of *The North American Review*. From 1855 to 1877 he was Professor of Modern Languages and Literature at Harvard. In 1877 he became ambassador in Madrid, and in 1880 in London. He left the service in 1885 and died Aug. 12, 1891.

Lowell is best known, perhaps, as a poet. Some of his shorter pieces, for example *The Present Crisis*, are among the finest in American literature, and his gift of humour is well seen in *The Biglow Papers*. Equally notable are *The Vision of Sir Launfal* and *A Fable for Critics*. His critical works include *My Study Windows*, *Among My Books* and *The Old English Dramatists*. He also wrote a life of Hawthorne and *Fireside Travels*.

Lowell Percival. American astronomer. Born in Boston, March 13, 1855, he spent his life in the study of astronomy, first at the Lowell Observatory, Flagstaff, Arizona, and later as Professor of Astronomy in Boston, and conducted very valuable researches. He wrote *Mars and its Canals* and *Mars as the Abode of Life*. Lowell died Nov. 13, 1916.

Lowestoft Borough, seaport, market town and watering place of Suffolk. It stands at the mouth of the Waveney, 118 m. from London, on the L.N.E. Ry. The narrow streets in the old town are called scores. With inner and outer harbour, Lowestoft is a great fishing port and has a large fish market. Near is Lowestoft Ness, the most easterly point of England. Pop. (1931) 41,768.

On June 3, 1665, there was a sea fight off Lowestoft between the English and the Dutch fleets. The Dutch were defeated.

On April 25, 1916, a German fleet, aided by some Zeppelins, bombarded Lowestoft and did some damage. There was another bombardment on Nov. 26, 1916, and the town was several times attacked from the air.

Low Sunday First Sunday after Easter. Various explanations as being so-called to distinguish it from the great festival whose octave it ends, or as the "Laudes Sunday" on which the sequence *Laudes Salvatoris* was sung, it is the Roman Catholic Alb or Quasimodo Sunday, and the Greek Antipascha or New Sunday.

Lowther Village of Westmorland. It is 4 m. from Penrith and gives its name to the family of which the Earl of Lonsdale is the head. Here is the earl's seat, Lowther Castle, built in the style of the 14th century and containing some valuable treasures.

Lowther Range of hills in Scotland. They are in the counties of Lanark and Dumfries. The highest points are about 2400 ft. high.

Loyalty Group of islands in the Pacific Ocean. They belong to France and are governed from New Caledonia, which is 100 m. away. The largest are Lifou, Mare and Uvea. Copra, rubber and coconuts are the main products. They cover 800 sq. m.

Loyola Ignatius. Spanish saint and founder of the Society of Jesus. He was born at Loyola, a castle in the Basque Provinces, Dec. 24, 1491, and passed his youth at the court of Ferdinand and Isabella. He then became a soldier, and while recovering from wounds he read some devotional books, with the result that in March, 1522, he dedicated himself to the service of the church.

He wrote about this time the wonderful book of devotion called *Spiritual Exercises*.

Loyola next made two journeys to Jerusalem, then studied at several universities, where he found some kindred spirits. In 1534 he and six others of them took vows in a church at Montmartre which marked the foundation of the great order. The intention of its members was to work for the conversion of the heathen. In 1540, when the order was formally founded by the pope, Loyola became its first general. The rest of his life was passed in Rome in organising the society, which in a few years became large and influential. He died July 31, 1556. In 1622 Loyola was canonised. See **JESUITES**.

Lozenge Diamond-shaped figure. Forming a subordinary in heraldic charges, it is a rustre if pierced with a round opening, a fusil if elongated. Shields so shaped bear the arms of spinsters and widows. The word also denotes a small medicated or flavoured tablet, originally diamond-shaped, for slow solution in the mouth, e.g., cough lozenges.

Lübeck City and seaport of Germany. It stands on the Trave, 10 m. from its mouth in Lübeck Bay, and is one of the most important of the Baltic seaports. It is connected by railway with Berlin, 180 m. away, and is also a centre for air services. The river channel has been deepened so that the largest vessels can reach the city.

As one of the chief towns of the Hanseatic League, Lübeck is historically a place of much charm. The 13th century town hall on the market place is one of the finest in Germany. Equally fine is the Gothic cathedral, enlarged in the 16th century, and there are many other notable old buildings. In the newer part of the town are some fine modern ones. Shipping and shipbuilding are carried on, while there are blast furnaces and manufactures of various kinds. Pop. 125,000.

Lübeck State of the German republic. It is a district along the river Trave, and includes the city of Lübeck and the town of Travemünde. The area is 15 sq. m. and the population 150,000. It is governed by a senate and a house of burgesses, the 12 members of the senate forming the executive.

Lubitsch Ernst. German actor. He was born in Berlin, Jan. 29, 1892, and from 1911 to 1922 gained experience as an actor in Germany. In 1922 he went to America to direct Mary Pickford's work for the films, and since 1927 he has produced for the Famous Players-Lasky Corporation.

Lubrication Act of insinuating between two surfaces such as parts of machines, greasing and rubbing against each other, substances called lubricants, designed to lessen friction and prevent serious abrasion. These substances may be solid, semi-solid or liquid, ranging from metallic alloys and graphite to animal, vegetable and mineral greases and oils.

Lucan Roman poet. He was born in Spain in A.D. 39, and was named Marcus Annaeus Lucanus. He went to Rome and his uncle, Seneca, secured for him entrance to the court of Nero. There his abilities made him conspicuous, and aroused the jealousy of the Emperor. In 65 he was concerned in a plot to murder Nero, and on this being discovered he committed suicide. His sole extant poem is called *Pharsalia*; it deals with the

civil war between Caesar and Pompey and the end of the republic.

Lucan Earl of. Irish title held by the family of Bingham. In 1632 **Henry Bingham** was made a baronet. In 1776 his descendant, **Sir Charles Bingham**, was made a baron, and in 1795 Earl of Lucan. His grandson, **George Charles Bingham**, who became the 3rd earl in 1839, was the soldier who commanded the cavalry division at Balaclava, where his share in the disaster led to a good deal of controversy. He died Nov. 10, 1888, and the present earl is his descendant. The earl's estates are chiefly in Co. Mayo, where is his seat, Castlebar House. His eldest son is called Lord Bingham. Lucan is a village on the Liffey, just outside Dublin.

Lucas **Edward Verrall**. English author. Born in 1865, he was educated privately. He began to write, and in 1902 joined the staff of *Punch*. He made a reputation as a humorist by the wits written with C. L. Graves, including *Wisdom While You Wait* and *Huddled History*. Some of his works are travel books, such as *A Wanderer in London*, and others are anthologies such as *The Open Road*. Some deal with art and others are novels of a somewhat discursive kind. A selection shows his versatility: *Highways and Byways in Sussex*, *Over Demerston's*, *Mr Ingleside*, *A Boswell of Baghdad*, *John Constable the Painter* and *A Wanderer among Pictures*. About 1924 he became chairman of the publishing firm of Methuen & Co., Ltd. He was made a Companion of Honour in 1932.

Lucas **John Seymour**. English painter. Born in London, Dec. 21, 1849, he was apprenticed to a wood carver, but later studied painting at the Royal Academy schools. His paintings of historical scenes won for him a considerable reputation, notable ones being "The Armada in Sight" and "After Culloden." He also painted a panel for the Royal Exchange, London. Lucas was made A.R.A. in 1886 and R.A. in 1898. He died May 8, 1923.

Lucca City of Italy, 15 m. from Pisa. Notable buildings are the 11th-century cathedral and the town hall, once a ducal palace. There are the remains of a Roman amphitheatre and aqueduct and of the town walls. From 1369 to 1797 Lucca was a republic. It is now a flourishing town with textile and other manufactures and an agricultural trade. Near the city are the famous hot baths of Lucca. Pop. 80,600.

Luce Bay Opening of the sea off the coast of Wigtownshire. It is between the Mull of Galloway and Burrow Head, and goes about 16 m. into the land.

Lucerne Perennial leguminous herb of the Mediterranean region, also called purple medick (*Medicago sativa*). Cultivated in antiquity, and reaching Tudor England, it grows widely nowadays in temperate climates, including western N. America which calls it alfalfa. Its trefoiled leaves and clusters of yellow or blue clover-like flowers yield several pasture and fodder crops annually. See ALFALFA.

Lucerne Lake of Switzerland. It is about 24 m. long and covers 45 sq. m. It is famed for its beauty and has associations with William Tell. The River Reuss runs through it.

Lucerne City of Switzerland. It stands just where the River Reuss leaves the Lake of Lucerne, 59 m. from Basel. Lucerne is the capital of the canton of the same name. Near is the famous Axenstrasse, a road cut out of the rocks.

Lucerne is a popular tourist centre and from it many famous beauty spots can be visited. It is a calling place for steamers on the lake, and has some industries. Pop. 41,600.

Lucian Greek writer. He was born in Syria and became a teacher, travelling from place to place and lecturing. Later he lived in Antioch and in Athens, and he died in Egypt in A.D. 180. The most popular of his many writings are his satires, in which he holds up to ridicule the gods and the old customs. They have been translated as *Dialogues of the Dead*, *Dialogues of the Gods*, and other titles. He also wrote a *True History*.

Lucifer Latin name, light bearer, for the planet Venus as morning star. The Hebrew word, "shining-one," denoting figuratively the King of Babylon in Isa. xiv. 12, and translated Lucifer in the Authorised Version becomes "day star" in the Revised Version. With this passage early Christian theologians incorrectly connected Luke x. 18 and Rev. xi. 1; hence Lucifer came to denote Satan before his fall.

Lucknow City of India. It stands on the River Gumti, 560 m. from Calcutta, and is an important railway junction. The city has many industries, some being traditional Indian crafts, while others are engineering works, railway shops and the like. From 1732 to 1857 Lucknow was the capital of the rulers of Oudh. It is now the capital of a division of the province of Agra and Oudh. Pop. 240,000.

The Siege of Lucknow was one of the outstanding incidents of the Indian Mutiny.

Lucretia Roman heroine. The wife of Lucius Tarquinius Collatinus, a member of the Tarquin family. Another member of the family outraged her, whereupon she stabbed herself to death on the next day. A revolt followed and the Tarquins were driven from Rome. Her story is told by Livy, and Shakespeare described the act in his poem, *The Rape of Lucrece*.

Lucretius Latin philosopher and poet. born in 98 B.C. Titus Lucretius Carus was born in 98 B.C. Very little is known about him except that he wrote, and that he died in 55 B.C. His great work is *De Rerum Natura*, a poem in which he expounds his philosophy, that of the Epicureans.

Lucullus Roman epicure. Lucius Licinius Lucullus was born in 110 B.C. and became a soldier. He made a reputation by his nine years' campaign against Mithradates, and became praetor in 77 and consul in 74. In 65 he retired from active service and during the next nine years gave feasts of unsurpassed profusion and splendour at his villa at Tusculum and at his house in Rome. He died in 57 B.C.

Lucy **Sir Henry William**. English humorist. Born in Liverpool in 1845, he was there educated. After a period in business, he became a reporter on a journal in Shrewsbury in 1864. In 1873, having been for a time in Paris, he joined the staff of *The Daily News*, and in 1881 became a member of the *Punch* staff. He was knighted in 1909 and retired in 1916. Lucy made his reputation as a reporter of debates in Parliament and by the

skill with which he obtained information of value for his papers. The sketches of the proceedings in Parliament which he wrote for *Punch*, signed Toby M.P., were a feature of that journal. Lucy wrote a number of books, including *Memories of Eight Parliaments* and *The Diary of a Journalist*. He died Feb. 20, 1924.

Luddites Men who caused disturbances in the Midland counties of England in 1811-12. The name is taken from that of Ned Ludd, an idiot living in a village of Leicestershire. The Luddites, believing that machinery was the cause of their unemployment and distress, went about destroying it. They were chiefly men connected with the making of hosiery in the counties of Nottingham and Leicester, where most of the damage was done. The rising was put down, but in 1816 there was another outbreak which extended into Yorkshire and Lancashire.

Ludendorff Erich. German soldier. Born in Posen, April 9, 1865, he entered the army in 1882. He secured an appointment on the staff, lectured to the students at the military academy and in time rose to the rank of major-general. In Aug., 1914, he took part in the attack on Liège, but was soon sent to the east to serve as chief of the staff to Hindenburg. When, in August, 1916, Hindenburg took command of all the German forces, he remained his chief adviser.

Ludendorff was responsible for the defeat of Rumania, but his chief energies were directed to the western front. He directed the German campaigns of 1917 and 1918, and in the former year introduced new methods of attack and defence. He was in control until the end came, but he could not avert the final defeat. In Oct., 1918, he resigned, and after a time in Sweden settled in Munich. Now and again he appeared in public life, once as an opponent of the republic. He wrote books on the war: *My War Memories*, *The General Staff and its Problems and Warfare and Politics*.

Ludgate One of the old gates of the city of London. It was near where the Old Bailey now stands and owed its name to the legend that it was built by King Lud. It was used as a prison for debtors and was pulled down in 1760. The name is now borne by Ludgate Circus, where Fleet Street meets Farringdon Street and New Bridge Street, and Ludgate Hill, which leads from the Circus to St. Paul's Cathedral.

Ludlow Borough and market town of Shropshire. It stands on the River Teme, 27 m. from Shrewsbury and 162 from London. The ruined castle is the chief object of interest. Tanning and milling are the chief industries. Interesting buildings include the old collegiate church in the Perpendicular style and The Feathers Inn.

Ludlow was a very important place in the Middle Ages, chiefly because of its position on the Welsh border. The president of the Council of the Marches lived in the castle and the Court of the Marches was held there. Milton's *Comus* was first played in the castle, which was destroyed in 1646. Ludlow sent members to the House of Commons from 1471 to 1885. Pop. (1931) 5642.

Ludlow Edmund. English politician. He was born about 1617, went to Trinity College, Oxford, and in 1642 joined the Parliamentary army. He was made governor of Woudour Castle which he defended until 1646. In the same year Ludlow became

M.P. for Wiltshire. He commanded the troops in Ireland, 1651-52, but became suspicious of Cromwell and lived for a time in retirement. In 1659 he was again an M.P., a member of the Council of State and commander of the troops in Ireland. He lived chiefly at Vevey until his death in 1698, the last of the regicides. Ludlow's *Memoirs* are a useful authority for the history of his time.

Ludwig Emil. German writer. Born in Breslau, Jan. 25, 1881, he was the son of a professor of ophthalmology named Cohen. He was educated at the universities of Breslau and Heidelberg and began his literary career by writing plays. He then did journalistic work and produced some novels, but his reputation rests upon his biographies. The first was a life of Bismarck, which he followed with lives of Napoleon, William II., Goethe and Abraham Lincoln, all described as psychological studies. He also wrote a life of Christ. His biographies have been translated into English.

Ludwigshafen Town and river port of Bavaria. It is on the Rhine, just opposite Mannheim. There is a good harbour and shipping is an important industry, while the town has manufactures of chemicals and beer, flour mills and iron foundries. The town was founded in 1843 by Louis, or Ludwig, King of Bavaria, and all its buildings are modern. Pop. 101,900.

Lugano Lake of Italy and Switzerland. It lies between Lakes Maggiore and Como, is 22 m. long and covers some 20 sq. m. The River Tresa carries its waters to Lake Maggiore. The scenery around is very beautiful and on the lake shores are many spots visited by tourists.

The city of Lugano is in Switzerland. At the north end of the lake, it is 51 m. from Milan on the main railway line. It is a tourist centre and a calling place for steamers on the lake. Pop. 14,200.

Lugard Frederick John Dealtry, Baron. British administrator. Born Jan. 22, 1858, and educated for the army, he first saw service in the Afghan War, 1879-80. With the exception of five years' governorship of Hong-Kong, 1907-12, his work has been confined to Africa, first in establishing and protecting British interests, then as High Commissioner of Northern Nigeria, 1899, Governor of Northern and Southern Nigeria, 1912, and finally Governor-General of all Nigeria. He has always sought to improve the conditions of the natives, doing much to abolish slave trading. He retired in 1919, was made Privy Councillor, 1920, and was appointed to the permanent mandates commission of the League of Nations, 1922. He was created a baron in 1928.

Lugg River of England and Wales. Rising in Radnorshire it flows through Herefordshire, entering the River Wye below Mordiford.

Lugger Vessel carrying lug-sails. Two-masted or three-masted, often with running bowsprit and 2-3 jibs, the quadrilateral sails are bent upon yards hanging obliquely to the mast.

Luke Traditional author of the third gospel and the Acts of the Apostles in the New Testament. He is commonly identified with the non-Jewish physician of Antioch mentioned by S. Paul, whose missionary journeys he sometimes accompanied.

Traditionally he died in Bithynia when 74 years old. As saint and evangelist he is commemorated on October 18.

Luke The Gospel of. Third book of the New Testament. Written after the Matthew and Mark gospels, and addressed to the Gentile world, it is remarkable for its tender interest in the sick and outcast, its sympathy with womanhood, its intimate details of the infancy, perhaps derived from the Virgin Mary, and its full treatment of our Lord's last journey to Jerusalem. Its literary charm betokens a versatile and cultivated intellect. Its sequel, The Acts of the Apostles, displays similar qualities.

Lully Jean Baptiste. French composer. He was born in Italy in 1633, but when a young man settled in France and became a Frenchman. He spent his life at the court of Louis XIV., first as a violinist, and finally as music master. He died in Paris, March 22, 1687.

Lully was a very successful composer. He wrote many operas in which he made the ballet an essential part and with him Molière was associated. His works include, *Alceste*, *Atys*, *Thésée* and other operas.

Lully Raymond. Spanish writer. Born in 1235 in the Island of Majorca, he was the son of a nobleman, and passed his youth at the court of the King of Aragon. About 1265 he devoted himself to missionary work among the heathen, to study and to writing. In 1315 he went to Algeria where his preaching against the Mohammedans irritated the people and he was almost stoned to death at Bougie. He was rescued by some sailors, but died on their ship, June 30, 1315. Lully had a great scheme for acquiring knowledge which he explained in his *Ars Magna*.

Lulworth Name of two villages of Dorset. East Lulworth is about 5 m. south-east of Wareham. West Lulworth is 2½ m. distant. Near is Lulworth Cove, a holiday resort.

Lumbago Painful muscular affection in the lower part of the back, due to inflammation of the connective tissue. It usually arrives as a sudden seizure, sometimes following exposure to cold and damp, or straining of the muscles of the loins.

Treatment.—During the acute phase of this type of rheumatism, local rest for the affected muscles of the back is essential. The application of heat in the form of poultices, and counter-irritants such as mustard or turpentine, may relieve the pain and diminish the inflammation. In chronic cases, massage, baths and spa treatment are most likely to be effective.

Lumber Word denoting: (1) useless discarded furniture, especially if cumbersome; (2) N. American timber sawn or split into logs, beams, boards, etc., for transportation. The latter use originated in 17th century New England, and the important activities long carried on in Canada and the United States, in the felling, preparing and transporting of timber constitute the lumber industry. The labour is performed by lumberers, lumberjacks or lumbermen. Similar operations enter into the collection of pulpwood for paper manufacture.

Lumley Castle Residence of the Earl of Scarborough. It is on the Wear near Chester-le-Street in Durham. The original building dates from the 13th century, but the present one is largely modern. A fine pile, it has been for

six centuries the seat of the Lumley family, which takes its name from here.

Lumpsucker Class of fish found round the coasts of Great Britain and the northern parts of Europe generally. It is about 12 ins. long, and has a power of attaching itself to the rocks by means of its sucker. The male is red and yellow in colour which varies according to conditions. In the breeding season the male watches over the eggs for several weeks.

Lunacy State of being unable to control one's actions, or as popularly understood, out of one's mind. A mental condition, it is not always easy to define. Many persons possess eccentricities or mental weaknesses, but it is not always easy to decide when these pass into lunacy.

In Great Britain a lunatic must be certified as such by two medical men. In a rate-aided case, only one medical certificate is necessary. He or she can then be put under control and his or her property managed by some one else. This is usually done by an application to the courts of law when a committee, as it is called, is appointed to manage the lunatic's estate.

To care for lunatics there are many private asylums which must be inspected, while the councils of counties and county boroughs must provide asylums. For criminal lunatics there is a special asylum at Broadmoor. To look after lunatics and mentally deficient there is a board of control at Caxton House West, Westminster. This consists of three senior commissioners, legal and medical, and a chairman. Under them are assistant commissioners. There is a similar board for Scotland at 25 Palmerston Place, Edinburgh.

Lund City of Sweden. It is 13 m. from Malmö and is famous for its university. In the 12th century Lund was a flourishing seaport, but the sea has receded from it. In 1676 a treaty between the Swedes and the Danes was signed here. Pop. 24,000.

Lundy Island in the British Channel. It is off the north coast of Devonshire, 12 m. from Hartland Point, and covers 1000 acres. Here are two lighthouses. Pop. about 50.

Lune River of Westmorland and Lancashire. It rises between Ravenstonedale and Lonsdale and flows through Lancashire to Lancaster Bay. Lancaster stands on it and its port, Glasson, is near the mouth. It is about 45 m. in length.

Lunenburg Town and seaport of Nova Scotia, 70 m. from Halifax. The industries are fishing and shipping. Pop. 2792.

Lunette Architectural term for the vertical wall space enclosed by a vault. It is often used for mural painting, or the space may be filled by a circular or oval window. The term is extended also to a round or oval window in a ceiling, and to a painting within a circular border and similarly placed.

Lunéville Town of France. It stands on a tributary of the Meurthe, 20 m. from Nancy. It is a manufacturing town with engineering works, railway works, motor car works and textile mills, and has an agricultural trade. It is also a military station and has large barracks. Pop. 25,000.

The Peace of Lunéville was signed here, Feb. 9, 1801. It was made between France and Austria and was a complete humiliation for

the latter. The Rhine was fixed as the boundary of France, and Napoleon was dominant in Italy and Switzerland where he set up several republics.

Lung Organ of respiration. In man it comprises two elastic spongy lobes enclosed in a serous membrane or pleura, almost filling the chest cavity, and weighing in healthy adults 40 oz. Communicating with the outer air through the windpipe, the right lung is three-lobed, the left two-lobed. At their roots the bronchi are subdivided into innumerable branches which ultimately reach tiny air-cells, furnished with capillaries through whose walls the carbon dioxide of venous blood is replaced by the oxygen of inhaled air. See PLEURISY, PNEUMONIA, TUBERCULOSIS.

Lung Fish Fish found in the rivers of the tropical parts of Africa, Australia and South America. They are the surviving descendants of what may have been the transitional stage between fishes and amphibians.

The South American lung-fish is shaped rather like a conger eel. Its home is in the marshes along the Amazon and its tributaries, and the fish wriggles through the thick aquatic vegetation, using its hind limbs in an irregularly bipedal way. It comes to the surface to take air into its lungs. In the dry season it hibernates.

Lungwort Perennial rough-haired herb of the borage order (*Pulmonaria angustifolia*). Locally called beggar's basket and Joseph-and-Mary, and occasionally found wild in Hants and Dorset, its lance-shaped leaves bear pale-green lung-shaped spots; the funnel-shaped flowers change from pink to blue. *P. officinalis*, growing in old gardens, has broader root-leaves, and the blooms are sometimes white. It is a native of Europe and an alternative name is Jerusalem cowslip.

Lunn Louise Kirkby. English singer. Born in Manchester, Nov. 8, 1873, she studied music in London. In 1893 she appeared on the concert platform and became one of the leading singers of the day. For three years she was with the Carl Rosa Company, and she has sung much at Covent Garden, London, and has made frequent tours abroad.

Lupercalia Roman festival. It was held every year on Feb. 15 in honour of Mars and the wolf (*Lupus*) and was a festival of fruitfulness. Sacrifices were offered by the priests, and with thongs cut from the skins of the dead animals they passed in procession. The women, anxious to be fruitful, came forward to be touched with the thongs. The festival was held on the Palatine Hill.

Lupin Genus of annual and perennial leguminous herbs and undershrubs. They are natives of the Mediterranean region and temperate America. Some were cultivated in antiquity for human food and cattle fodder. Gardeners have developed many attractive hybridised forms, annuals being derived from both eastern and western species, perennials from American only.

Lupus Disease of the skin occurring in two forms. *Lupus vulgaris*, due to the tubercle bacillus, develops nodules, usually about the nose, cheeks or ears, which may persist for years, ulcerate, and produce unsightly scars. A milder form, *lupus erythematosus*, whose cause is unknown, develops

red, scaly patches which do not ulcerate. These may be treated with soothing ointments, but the more serious form may need stronger caustics, or the application of Finzen-light or X-ray treatment.

Lurcher Dog that is a cross between a greyhound and a collie or other kind of sheep dog. They are usually very useful for hunting hares and rabbits and for retrieving game, and are therefore frequently kept by poachers.

Lurgan Urban district of Co. Armagh, Northern Ireland. It is 20 m. from Belfast on the G.N. (Ireland) Rly. The chief industries are the making of linen and the preparing of tobacco. Lough Neagh is near the town. **Lurgan Castle**, a fine modern building, is the seat of Baron Lurgan, a title dating from 1839. Pop. (1926) 12,553.

Lusatia District of Germany. It is in the east of the country, partly in Prussia and partly in Saxony. In the Middle Ages it was divided into two parts, Upper and Lower. It was part of Bohemia and then of Hungary before it passed to Saxony and Prussia.

Lusitania Name used in Roman times for a province that included Portugal and part of Spain. It is sometimes used to-day for Portugal.

The Lusitania was a Cunard steamship that was sunk by a German submarine off the coast of Ireland, May 7, 1915; 1,198 persons lost their lives. The vessel was one of 31,500 tons.

Lute Stringed instrument. It is long-necked, with fretted finger-board and pear-shaped back, and was introduced into Europe by the Crusaders. As an orchestral instrument it persisted until 1741, as a solo instrument until 1780, but it was in its prime in the Middle Ages.

Lutetia Latin name for Paris (*q.v.*). The town which in the time of Julius Caesar stood where is now the centre of the city was called by this name. It was the chief town of a tribe called the Parisii.

Lutecium Rare metallic element of the yttrium group of rare earths. It has the symbol Lu and atomic weight 175. Lutecium was isolated by Urbain in 1907 from ytterbium by fractional crystallisation. It occurs along with ytterbium and other metals of the same group in the mineral gadolinite from Ytterby in Sweden.

Luther Hans. German statesman. Born in Berlin, March 10, 1879, he studied law and became a public official, first at Charlottenburg and then in Magdeburg. During the war period he was secretary of the association of German and Prussian towns, and from 1918-22 was burgomaster of Essen. In Dec., 1922, he returned to Berlin to become minister of food, and in Oct., 1923 minister of finance under Stresemann. He restored the German currency and in 1925 became Chancellor, in which capacity he was the German leader at Locarno. In May, 1926, he resigned and became associated with the management of the state railways. Hitherto without definite party ties, in 1927 he joined the People's Party.

Luther Martin. German reformer. He was born at Eisleben, in Saxony, Nov. 10, 1483, the son of a slate cutter. His parents were poor, but he was well educated at Magdeburg, Eisenach, and Erfurt. He entered a monastery there and became a

monk. In 1508 he went to Wittenberg as a lecturer at the university and made a reputation as a preacher.

By now he had worked out a doctrine of salvation, different from that taught by the church, and in 1517 he became a national figure. He challenged John Tetzel, a friar who was selling indulgences, to a discussion on the subject and drew up 95 theses as a basis for the debate. These he fixed on a church door at Wittenberg on Oct. 31, 1517, an event which is usually regarded as marking the opening of the Reformation.

Luther's action created a great stir in Germany, where people were becoming alive to the scandals in the church, and he soon had a considerable following, which was strengthened by his writings. In 1520 the pope issued a bull condemning his views, but this was publicly burned by the reformer at Wittenberg and his breach with the church was complete. He did, indeed, when summoned, attend the diet at Worms in 1521, but again he refused to give way in his famous sentence, *Ich kann nicht anders* (I can do no other). To save him from violence he was carried off to a fortress, the Wartburg, and there he lived for about a year under the protection of the Elector of Saxony. The Reformation had been started and much of Luther's later life was passed in organising the Reformed Church in Germany. He took little part in politics, but in 1525 and at other times showed himself hostile to the peasants and their grievances. In 1526 he married an escaped nun, Catherine von Bora. He died at Eisleben, Feb. 18, 1546.

Luther's great literary work was his translation of the Bible. He also wrote some popular hymns. His three chief theological works are, *On the Duty of a Christian Man*, *An Address to the Nobility of the German Nation* and *On the Babylonian Captivity of the Church of God*.

Lutheranism

Form of religion founded by Martin Luther. Its creed is contained in the confession of Augsburg, but, like other churches, it does not demand to-day a literal acceptance of all the doctrines stated therein. Lutheranism is strong in Germany where, after being divided into many churches, it now forms a united church, to which more than half of the population nominally belong. Before the foundation of the republic it was the state church.

Lutheranism is the state religion in Norway, Sweden and Denmark, and is strong in the United States. Its adherents, altogether, may number 80,000,000 or 70,000,000. It is governed by its ministers, by elected courts called consistories and by synods. In many ways it is rather like the Presbyterian churches, retaining a certain amount of ceremonial, including the keeping of the church festivals. The singing of hymns occupies a prominent place in its worship.

Luton

County, borough and market town of Bedfordshire. It is 30 m. from London and is served by both the L.M.S. and L.N.E. Ryhs. Luton was once noted as the centre of the straw plaiting industry. The chief industries to-day are the making of motor cars and engineering products. In 1928 the borough was enlarged. Pop. (1931) 68,526.

Lutsk

Town of Russia, on the River Strv. At one time it was the capital of an independent state, but it became

Russian in 1791. The Russians made it into a strong fortress. Pop. 30,000. In 1915 it was captured by the Germans. In June, 1916, the Russians in their great offensive regained it and captured a great deal of war material. Later in the year it again changed hands and the Germans retained it until peace was made with Russia in 1917.

Lutterworth

Market town of Leicestershire. It stands on the little River Swift, 90 m. from London, on the L.M.S. and L.N.E. Ryhs. The chief building is the fine old parish church which is associated with John Wycliffe, who was rector here, 1374-84.

Lutyens

Sir Edward Landseer. English architect. He was born in London, March 20, 1869, and was trained as an architect. His designs soon attracted attention and he became in time one of the outstanding figures in his profession. He was employed on the planning of Delhi, and was responsible for Government House and other buildings there. He also designed the Cenotaph in Whitehall, London, and several other war memorials, as well as Britannia House, London, for the Anglo-Persian Oil Company. He was made A.R.A. in 1913, a knight in 1918, and R.A. in 1920.

Lutzen

Town of Germany. It is in Prussian Saxony and is famous because near here two decisive battles have been fought.

On Nov. 16, 1632, the Swedes under Gustavus Adolphus fighting for the Protestants in the Thirty Years' War, met here the army of Wallenstein. Each army was about 20,000 strong. After a stern fight, in which Gustavus was killed, the Swedes were victorious. Memorials mark the site. On May 2, 1813, there was a battle here in which the French under Napoleon defeated the Russians.

Luxembourg

Palace in Paris now a museum. On the left bank of the Seine, it was built early in the 17th century on land bought from the Duke of Luxembourg-Piney as a residence for Marie de Medicis, widow of Henry IV. After a time it fell into decay, but it was restored in 1836 and converted into an art gallery. It contains a fine collection of modern paintings. There are some magnificent rooms decorated in the most sumptuous style, while the gardens are large and beautiful.

Luxembourg

Marshal. French soldier. Born January 8, 1628. Francois Henri de Montmorency-Bouteville was related to the Condé family. He left France, after taking part in the civil war, and went to Spain where he served in the army. His brilliant career in the French army began in 1659; in 1672 he took command of an army and during the war against the Netherlands made his reputation. In the war that began in 1689 he won victories over William III. at Steinkirk and Neerwinden. He was made Duke of Luxembourg in 1661, a marshal in 1675, and died, Jan. 4, 1695.

Luxembourg

Country of Europe. It is a grand duchy lying between Belgium, France and Germany, and covers 999 sq. m. Luxembourg, a town with 20,000 inhabitants, is the capital. The Ardennes cover much of the land, which is mainly an agricultural area, although iron ore is mined in the south. The chief river is the Sure. The government is conducted by a small cabinet and there is a council of state and

an elected house of 52 members. The land was occupied by the Germans from 1914-18, and in 1919 a referendum took place to decide its future. In 1922 an economic union with Belgium was made, and in July, 1932, Luxembourg joined that country and the Netherlands in a treaty for the mutual lowering of tariffs.

In the Middle Ages Luxembourg was a county and its counts made themselves powerful rulers. In 1354 their land became a duchy, and in 1443 a part of Burgundy. Later it belonged to Spain and then to Austria. In 1815 it was made a grand duchy, and in 1839 it was divided between Belgium and the Netherlands, the part assigned to the latter country being the present Luxembourg. In 1890, when the king of the Netherlands died, Luxembourg again became a separate state with Adolph, Duke of Nassau, as grand duke. He was succeeded by a son, William, after whose death in 1912 his daughter, Marie, became grand duchess. In 1919 Marie abdicated in favour of her sister, Charlotte. She is married to a prince of Bourbon-Parma.

Luxor Town of Egypt. It is on the east bank of the Nile, 418 m. from Cairo. It is a tourist centre and is also visited by invalids. Luxor occupies the site of the old city of Thebes, and adjacent to it is Karnak with its temple. Pop. 12,600. See KARNAK, THEBES.

Luzon Second largest island of the Philippine group. It is about 300 m. long and covers 43,000 sq. m. There is a mountainous area in the north and centre, and several active volcanoes. Much of the soil is fertile, and tobacco, sugar and hemp are grown. Minerals are abundant. Manila, the capital of the group, is in the south-west of the island.

Lyautey Louis Hubert. French soldier. Born at Nancy, Nov. 17, 1854, he passed through the college at S. Cyr into the army. He saw a good deal of service in Algeria and Madagascar and was in Indo-China for a time. He rose to the rank of general and in 1912 was appointed administrator of Morocco. In 1916 he was minister of war for a short time, but in 1917 he returned to Morocco, where he remained until 1928. Lyautey's work in bringing peace and prosperity to Morocco is one of the outstanding successes of the French rule in Africa. In 1921 he was made a marshal.

Lycanthropy Term denoting in folklore the power attributed by popular superstition to certain human beings of being transformed, temporarily or permanently, into an animal, wolf, dog, tiger, hyena or jaguar. Pathologists recognise a form of hysteria, called lycanthropy, in which the patient, believing himself to be an animal, acts accordingly.

Lycaon In Greek legend a king of Arcadia. He was turned into a wolf because he offered human flesh to Zeus when the god came to visit him. Of his 50 sons 49 shared his fate.

Lycaonia was the name of a district in Asia Minor. Iconium was the capital; other places being Lystra and Laodicea.

Lyceum Grove outside Athens near a temple sacred to Apollo Lycius. As Aristotle and other philosophers taught here, the word was used later for a place of learning and this use has persisted, especially in France where lycées are very common.

The **Lyceum Theatre** in London is in Wellington Street, Strand. It was built in 1765, rebuilt in 1816 and burned down in 1830. In 1834 the present theatre was built. From 1878 to 1902 it was used by Henry Irving and Ellen Terry. Later it became associated with melodrama.

The **Lyceum Club** is a club for women, chiefly professional and artistic. It was founded in 1904 and its house is 138 Piccadilly, London, W.1.

Lych Gate Covered gate at the chief entrance to a churchyard and usually having a gable roof. It was the old custom at a funeral for the coffin to rest at the gate until the arrival of the clergyman, hence the sheltering roof. The oldest lych gate in England is said to be the one at Bray, Berks., dated 1448.

Lyck Town of East Prussia. It stands on the River Lyck, 118 m. from Königsberg. Near the borders of Germany, Lyck was an important place in the Middle Ages. Pop. 13,400.

During the Great War Lyck was occupied by Russian troops in Aug., 1914, and again in Oct. On Sept. 12, there was a battle near the town, the Russians being defeated and driven back.

Lycurgus Spartan lawgiver. He lived about 800 B.C. He is regarded as the creator of the constitution of Sparta, which he reformed on returning from a period of travel.

Another **Lycurgus** was an Athenian. He lived in the 4th century B.C., and did a good deal to improve the finances, strengthen the navy and beautify the city. He was also an orator and 15 of his speeches remain.

Lydd Borough of Kent. It is 71 m. from London, on the S. Ry. The town is now an inland one as the sea has receded. It was a Cinque Port in the Middle Ages. The explosive, lyddite, was tested near here; hence its name. Pop. (1931) 2778.

Lyddite Explosive closely resembling melinite in composition, and named from Lydd in Kent. It is a mixture of picric acid and trinitrotoluol in varying proportions.

Lydford Village of Devonshire. It stands on the River Lyd, 7 m. from Tavistock on the S. Ry. It is on the edge of Dartmoor and in the Middle Ages was a borough and market town. As a stannary town the courts were held in Lydford and here was the stannary prison **Lydford gorge** is one of the beauty spots of the district.

Lydgate John. English poet. Born at Lydgate, Suffolk, about 1370, he became a priest of the Benedictine order. He spent some time abroad. Henry IV. made him court poet. From 1423 to 1434 he was prior of a religious house in Essex. He died about 1451, and was buried at Bury St. Edmunds. Lydgate was an imitator of Chaucer. His chief works are *The Scurie of Thebes*, *The Troy Book*, *The Fall of Princes* and *The Temple of Glass*, all based on older romances.

Lydia Kingdom that existed in Asia Minor before the Christian era began. It came into existence after 700 B.C., and was most flourishing under the rule of Croesus, when it included a good part of Asia Minor. In 546 Croesus was defeated by the Persians and Lydia became subject to the Persian kings. It recovered its independence in 334, but only for a brief time. In 133 B.C.

It was included in the Roman Empire. Its capital was Sardia. It is said that metallic coinage was first used in Lydia.

Lydney Town of Gloucestershire. It is in the Forest of Dean, 8 m. from Chepstow, and is reached by the G.W. Ry. There are coal mines in the neighbourhood. In Lydney Park, the seat of Lord Bledisloe, Roman remains have been found.

Lye Term applied to a solution of caustic potash or soda or the alkaline carbonates. It was originally prepared by the extraction with water of impure carbonate of potash from wood ashes for use in soap-making. Lyes are used for cleansing purposes and the removal of grease from fabrics, etc., also for refining petroleum and in tanning.

Lyell Sir Charles. British geologist. He was born in August, Nov. 14, 1797, the son of Charles Lyell, a botanist, and went to Exeter College, Oxford. He became a barrister, but gave his time to travel and the study of geology. In 1832-33 he was professor of King's College, London, and in 1864 was president of the British Association. In 1848 he was made a knight, and in 1864 a baronet. He died Feb. 22, 1876.

Lyell's work had a great influence on the modern study of geology. His chief book is *The Principles of Geology*, a standard work on the subject. He also wrote, *The Geological Evidences of the Antiquity of Man*, and left *Letters and Journals*, which were published in 1881.

Lyly John. English writer. He was born in Kent in 1553, and studied at Oxford and Cambridge. He entered the service of Lord Burghley, and for 20 years was responsible for the entertainments at the queen's court. In 1589 he was elected an M.P. Lyly is known as the author of *Euphues*, the publication of which in 1579-80 is an important event in English literature. It is a prose romance, the first of its kind in English, in two parts, *The Anatomy of Wit* and *Euphues and his England*. Euphues was an Italian gentleman whose adventures are related. The book, which was very popular, created the word euphuism for a style of writing in which simile, allusion and antithesis are used to excess. Lyly wrote eight plays, or masques for the court; among them are, *Sappho and Phao*, *Endymion*, *Mother Bombie* and *The Woman in the Moon*. He died in London in Nov. 1606.

Lyme Regis Borough, seaport and watering place of Dorset. It is on Lyme Bay, 160 m. from London, on the S. Ry. There is a harbour and some shipping, while quarrying is an industry, but the place is less prosperous as a seaport than it was in the Middle Ages. From 1295 to 1817 Lyme Regis, which was in early times the king's property, was separately represented in Parliament. The place is mentioned by Jane Austen and here the Duke of Monmouth landed in 1685. Pop. (1931) 2620.

Lymington Borough, seaport and market town of Hampshire. It stands at the mouth of the Lymington River 18 m. from Southampton, and 90 from London on the S. Ry. The place is a yachting centre and from here steamers go to the Isle of Wight. Until 1885 it sent members to Parliament. Pop. (1931) 5157.

The Lymington River rises in the New Forest and flows into the English Channel just beyond Lymington.

Lymm Urban district of Cheshire. In the north of the county, it is situated on the Bridgewater Canal, and is practically a suburb of Manchester. It is 187 m. from London by the L.M.S. Ry. Pop. (1931) 5642.

Lymph Name given to the colourless fluid consisting of a plasma identical with blood plasma. It is conveyed through lymphatic vessels to the lymphatic glands, where leucocytes or white blood corpuscles are added to the plasma, and finally to the capillaries. The work of the lymph is to carry nutriment to the tissues and to return waste products to the blood. The lymph glands not only form white blood corpuscles but also aid in destroying the toxins of microbes.

Lympne Village of Kent. It is 2 m. from Hythe, and is chiefly known as an air station. This was established in 1915 and until the end of the Great War was used for military purposes. It was then converted into a station on the route from the Continent to London.

Lynch Law Name given to the take the law into their own hands. It was very usual in North America in the 19th century, as it was also in various parts of Europe, while it is not unknown to-day. It appears to flourish where racial antagonism is strong and authority somewhat weak, and crimes against women make a special appeal to it. The name is that of a farmer in Virginia named Charles Lynch, who, in the 18th century, was a leader of those who took summary vengeance on black men for offences against the whites.

Lynd Robert. British writer and critic. Born in Belfast, the son of a Presbyterian minister, April 20, 1879, he was educated there. After graduating at Queen's College, he settled in London and joined the staff of *The Daily News*. After a time he became the literary editor of that paper, a post he retained when it became *The News Chronicle*. He wrote also a good deal for weekly and other periodicals, chiefly reviews of books and essays. His many published books include, *Home Life in Ireland*, *The Art of Letters* and *The Peal of Bells*. His wife, Sylvia, is also a writer both in prose and verse.

Lyndhurst Town of Hampshire. It is in the New Forest, 9 m. from Southampton, on the S. Ry. It is a centre for visitors to the Forest. In August there is a sale of forest ponies here. The church contains frescoes by Lord Leighton.

Lyndhurst Lord. English lawyer. John Singleton Copley, a son of the artist, John S. Copley, R.A., was born at Boston, U.S.A., May 21, 1772. He was educated at Trinity College, Cambridge, where he was second wrangler and became a barrister. In 1818 he entered the House of Commons as M.P. for Yarmouth, and in 1819 he was made solicitor-general; in 1824 he became attorney-general. In 1827 Copley, now a leading figure among the Tories, was made lord chancellor and a baron. He left office in 1830, but was again lord chancellor, 1834-35 and 1841-46. From 1830-34 he was chief baron of the exchequer. He died Oct. 12, 1863, when his title became extinct.

Lynmouth Watering place of Devonshire. It stands where the East Lyn and the West Lyn meet, 18 m. from

Barnstaple. A cliff railway runs from here to Lynton, which stands much higher. There is a harbour and steamers go from here to Bristol and Ilfracombe. Near is the beauty spot called Watermeet.

Lynton Urban district and watering place of Devonshire. It is on the north coast, 17 m. from Barnstaple. Pop. (1931) 2012.

Lynx Class of animals belonging to the cat family (*Felis*). It is found in Europe, Asia and North America, though it is not so common as it was formerly. At one time, as remains show, it lived in England. The animal is larger and heavier than the cat and has a short tail and bearded cheeks. There are several species, and the fur varies in colour from white to quite dark. All are savage and feed on birds and small mammals, but will attack larger ones, such as sheep and goats.

Lyon Word used in Scottish heraldry. It is a form of lion. The herald's office for Scotland is called the Lyon Court and its head is the Lyon King of Arms who is registrar of the Order of the Thistle. He is assisted by three heralds, Marchmont, Albany and Rothesay, and three pursuivants, Carrick, Falkland and Unicorn. His office is in the Register House, Edinburgh.

Lyonnesse Name of a country now supposed to be submerged. It was off the north coast of Cornwall and may have included that county. Breton and Cornish folklores contain many references to it. It was the land of Arthur and his knights, and Camelot was its chief town.

Lyons City in eastern France. First founded in 50 B.C., and later occupied by the Romans, it is now the capital of the Rhône department, with a population of 539,591. It stands where the Rivers Saône and Rhône meet, and has fine bridges, quays, and some docks. The cathedral of St. Jean was begun in the 12th century, and there are many Roman remains.

Lyons is the seat of an archbishopric, and the headquarters of an army corps. Its educational facilities include a university and the earliest veterinary school in Europe. Silk is the foremost industry, and has developed rapidly since 1450. Artificial silk is also manufactured; there is a large dye industry, and trade in cloth, coal and metals, wines and chestnuts. It has two broadcasting stations (465.8 M., 1.5 kW.; and 287.6 M., 0.7 kW.).

Since 1916, an International Fair has been held annually at Lyons.

Lyons Sir Joseph. British business man. The son of Nathaniel Lyons, he was born in London. He was educated by the Jews and studied art. In 1894, having foreseen the possibilities of the catering business, he opened a tea shop in London, and this was the first of many. Hotels were added and the firm opened factories to produce many of the products sold, the result being that it became the largest business of its kind in the land. In 1911 Lyons was knighted and he died June 22, 1917.

Lyons Joseph Aloisius. Australian politician. Born in Tasmania, Sept. 15, 1879, he finished his education at the university of Tasmania and became a teacher. In 1909 he was elected to the legislature of the state on the Labour interest and from 1914-16 he was treasurer and minister of education. From 1923 to 1928 he was prime minister of the island. In 1929 Lyons was elected

to the House of Representatives of the Commonwealth and at once joined the ministry of Mr. Scullin as postmaster-general and minister of works. He was acting treasurer during Mr. Scullin's absence in London in 1930, but in Jan., 1931, he resigned as he differed from some of his colleagues on the vital question of handling the grave financial situation. He came forward as the leader of the party that stood for meeting all obligations, and at the end of the year he and his followers scored a great success at the general election. Lyons then became prime minister.

Lyre Musical instrument. From a hollow sound chest rise two curving arms (sometimes hollow) connected by a cross-bar, from which seven or more strings run to another cross-bar on the sound chest. These are touched by the left hand. The instrument was much used by the Greeks who sometimes played it with a small stick or plectrum.

Lyre Bird Genus of perching birds allied to the scrub bird. Resembling in size the domestic fowl, the males, after the third year, develop in the breeding season handsome tails, much longer than themselves, which are displayed peacock-wise in the form of stringed lyres. Some species imitate the notes of other birds. They are found in Australia only.

Lyric Originally a song sung to the accompaniment of the lyre, but to-day a form of poetry. It is opposed to epic or narrative poetry and is much more an effort of the imagination. The lyrics in the great Greek plays are among the finest in existence, notably those in *Hippolytus* and other plays of Euripides translated into English by Gilbert Murray. Pindar, Anacreon, Alcaeus, Sappho and other Greek poets also wrote beautiful lyrics.

In English poetry the lyric has a firm place. There are some in the plays of Shakespeare, for instance in *As You Like It*, and writers of the lyric flourished in Tudor times from Thomas Campion to Edmund Spenser. But apart from Shakespeare, the greatest writers of the lyric belong to the 17th century, and those written by Sir John Suckling, Robert Herrick, Lovelace and others are an imperishable part of English literature. Only less notable are the religious lyrics of George Herbert and Henry Vaughan. As a lyricist the name of John Donne should be mentioned.

The 18th century was not favourable to the lyric, but the poets of the 19th made good use of it. Perhaps Shelley is the supreme genius in this form of verse, but Keats, Tennyson and Swinburne, Wordsworth and Browning also wrote some wonderful lyrics.

Lys River of Europe. It rises in France between Boulogne and Lille and soon passes into Belgium. It is 120 m. long and falls into the Schelde at Ghent; it is connected by canal with the Yser.

There was a good deal of fighting along the course of the river during the Great War, especially when, in October, 1914, and again in April, 1918, the Germans made efforts to seize the coast of Flanders beyond Ostend, and so control the Channel ports.

Lysander Spartan statesman. He lived in the 4th century B.C., and became prominent during the war with Athens as commander of the fleet. He secured aid from the King of Persia, but his greatest exploits were his victory over the Athenian fleet at the battle of Aegospotami and the

capture of Athens, events which ended the Peloponnesian War in favour of Sparta. He was killed when fighting the Thebans in 393 B.C. His life was written by Plutarch.

Lýstra City of Asia Minor. It is now called Khatyn Seral. S. Paul visited it on his travels there. He and Barnabas were taken by the people for Jupiter and Mercury (Acts xiv.).

Lytham-St.-Anne's Borough, watering place and market town of Lancashire. It stands on the estuary of the Ribble 6 m. from Blackpool, on the L.M.S. Rly. The place, which has two piers, promenade and gardens, consists of Lytham and St. Annes which, until 1922, were separate urban districts. Pop. (1931) 2576.

Lyttelton Town and seaport of New Zealand. It is in South Island, 7 m. from Christchurch and has a fine natural harbour, around which docks have been built. Much of the produce of the Canterbury district is exported from here. Pop. 3800.

Lyttelton Alfred. English politician and athlete. The youngest son of the 4th Lord Lyttelton, he was born Feb. 7, 1857, and went to Eton and Trinity College, Cambridge. He became a barrister and a K.C. and in 1895, as a Liberal Unionist, was elected M.P. for Warwick and Leamington. In 1902 he went to the Transvaal on public business and on his return to England in 1903 succeeded J. Chamberlain as colonial secretary. He held office until 1905, being chiefly concerned with the question of Chinese labour in the S. African mines. In 1906 he lost his seat at Warwick, but was soon elected for S. George's, Hanover Square, and was in the House of Commons until his sudden death, July 5, 1913. His only son is Captain Oliver Lyttelton, D.S.O. His first wife was Laura, a daughter of Sir Charles Tennant, Bart., and sister of the Countess of Oxford; the second was Miss Edith Balfour who wrote his *Life*.

Lyttelton was a superb athlete. At cricket he was captain of Eton and Cambridge and played for England against Australia. He represented Cambridge and England at association football, and he was the amateur racquet champion, 1882 to 1895.

Of Alfred Lyttelton's seven brothers, the most notable perhaps were, Sir Neville Gerald Lyttelton, the fourth, and Edward Lyttelton, the seventh. The former entered the army and held high commands in the South African War (1899-1902). From 1904-12 he was commander-in-chief in Ireland and from 1912 until his death, July 6, 1931, was governor of Chelsea Hospital.

Edward was captain of the Cambridge cricket eleven. He became a schoolmaster and a clergyman. From 1890 to 1905 he was head master of Halesbury and from 1905 to 1916 of Eton.

Lyttelton Baron. English title borne by the family of Lyttelton.

George Lyttelton, an M.P., was made a baron in 1756. He was related to the Temple family and was associated politically with Chatham. When his son, Thomas, who succeeded him, died, Nov. 24, 1779, the title became extinct.

In 1794 the barony was revived for William Henry Lyttelton, an uncle of the last holder. He was succeeded in turn by his two sons. In 1837 a grandson, George William Lyttelton, became the 4th baron. He was a fine scholar, having been senior classic at Cambridge, and a politician. He was known, too, as the brother-in-law of W. E. Gladstone and the father of eight sons, who won fame in various fields of activity, not least as cricketers. He died April 10, 1876. His eldest son, who succeeded, inherited in 1889 the title of Viscount Cobham (q.v.). Hagley Hall in Worcestershire has been the seat of the Lytteltons for some 800 years.

Lytton Earl of. English title held by the family of Lytton. Edward Robert Lytton, a son of Baron Lytton, was born in London, Nov. 8, 1831. He went to Harrow and entered the diplomatic service in 1849. Having gained experience in Paris, Vienna and elsewhere, he was made ambassador to Portugal in 1874. From 1876 to 1880 he was governor-general of India and from 1887-91 was ambassador in Paris. In 1873 he became a baron and in 1880 was made an earl. He died in Paris, Nov. 24, 1891. Lytton wrote a good deal of verse under the name of Owen Meredith.

Victor Alexander George Robert Lytton, who became the 2nd earl in 1891, was a grandson. Born Aug. 9, 1876, and educated at Eton and Trinity College, Cambridge, he held positions in the coalition ministry between 1916 and 1921 and from 1922 to 1927 was governor of Bengal. He wrote the *Life* of his grandfather, Lord Lytton. In 1932 he went out to Manchuria as head of a mission sent by the League of Nations. Lord Lytton's seat is Knebworth House, Hertfordshire, and his eldest son, a noted athlete, is called Viscount Knebworth.

Lytton Lord. English novelist. Edward George Earle Bulwer-Lytton was born in London, May 25, 1803. His father, Earle Bulwer, was a soldier and his mother a member of the old family of Lytton. He was educated privately and at Cambridge, and in 1831 became M.P. for St. Ives and in 1832 for Lincoln; he lost his seat in 1841, but from 1852 to 1866 was M.P. for Hertfordshire. In 1858-59 he was secretary for the colonies and in 1866 he was made a baron. Lytton died at Torquay, Jan. 18, 1873, and 1873, and was buried in Westminster Abbey.

Lytton's fame rests solely upon his novels and plays, although to-day these are rather neglected, as being too sentimental and perhaps too tedious. In their time, however, they enjoyed great popularity. The best are: *The Last of the Barons*, *The Last Days of Pompeii*, *Rienzi* and *Harold*. Others are: *Paul Clifford*, *Pelham*, *The Cartons*, *Zanoni*, *Eugene Aram*, *Ernest Maltravers*, *Night and Morning* and *The Parisians*.

MAARTENS Maarten. N a m o taken by the Dutch novelist, Joost Marius Willem van der Poorten Schwartz. He was born in Amsterdam, Aug. 15, 1858, and was educated in England and Germany. He became a lecturer in law at the University of Utrecht, but soon adopted the career of a writer. His novels, stories of Dutch life, were published in both English and Dutch. The best of them are: *The Sin of Joost Avelingh*, *A Question of Taste*, *God's Fool*, *My Poor Relations*, *The Woman's Victory*, *The New Religion* and *Brothers All*. He died Aug. 5, 1915.

Maastricht Town and river port of the Netherlands. It is on the Meuse near the frontier of Belgium, 16 m. from Liège. The town has some manufactures and a trade along the river where there are large docks. Pop. (1930) 60,533.

Mabinogion The. Title given by Lady Charlotte Guest to her English translation of eleven Welsh prose tales from the 14th-century Red Book of Hergest. They include four Irish mythological romances, called the four branches of the Mabinogi, the ancient stock-in-trade of young bardic aspirants, associated with old Welsh tales and Arthurian romances. The Mabinogion was first published in 1838.

Mablethorpe Urban district and watering place of Lincolnshire. It is 13 m. from Louth, on the L.N.E. Ry. There are good sands and bathing. Pop. (1931) 3928.

Mabuse Jan Gossaert De. Flemish painter. He was born about 1472 and took the name of Mabuse from his birthplace, Maubeuge. He became a painter and passed some time in Italy. He was in the service of the Duke of Burgundy for some years and died Oct. 1, 1532, at Antwerp. Mabuse is represented in the National Gallery, London, by "The Adoration of the Kings."

Mac Scottish word meaning "son". It has become part of a large number of surnames common in Scotland and N. Ireland. In these it is sometimes spelled simply M. or Mc. In all cases the rule is to vocalize them as if they were all spelled out Mac.

McAdam John Loudon. Scottish engineer. He was born at Ayr, Sept. 21, 1756, and is famous for his introduction of the use of firmly embedded layers of small pieces of granite or similar material for road surfaces, a method since known as macadamising. He was appointed Surveyor-General of Roads in the Bristol area in 1815, and of the Metropolitan area in 1827. He died Nov. 26, 1836.

Macao Colony in China belonging to Portugal. It consists of the island of Macao in the Canton river and the smaller islands of Taipa and Coloane. The total area is about 10 sq. m. The transit trade is mostly in the hands of Chinese. The Portuguese settled here in 1557. Pop. (1926) 157,175.

Macaroni Form of farinaceous food, chiefly prepared in Italy.

Made from the hard wheat, rich in gluten, habitually cultivated in S. Europe, the flour is kneaded into paste, inserted in a cylinder with perforated ends, pressed out in tubular form and stove-dried.

Macaroni Travelled exquisites who introduced extravagant modes as well as macaroni into late 18th-century England. Forming the Macaroni Club (Charles James Fox being a member) they wore towering perukes, diminutive hats, striped or spotted breeches with beribboned ends, frilled shirt-fronts and large white cravats. Macaroni women outrivalled them in extravagance of head-dress.

Macartney Earl. British administrator. George Macartney was born in Co. Antrim, May 14, 1737, and was educated at Trinity College, Dublin. In 1764, having joined the public service he went to Russia where he made a commercial treaty. From 1769-72 he was Chief Secretary for Ireland, and from 1780-86 Governor of Madras. He was the first ambassador to China, 1792-94, and from 1796-98 Governor of the Cape of Good Hope. He was made a baron in 1776 and an earl in 1792. He died May 31, 1806, when his titles became extinct.

Macassar Seaport and capital of Celebes, Dutch E. Indies. Situated on the S.W. coast, it exports timber, coffee, copra, rubber and other forest products. Pop. 21,000.

Macassar Strait, about 550 m. long, with a maximum breadth of 87 m., separates Celebes from Borneo by a deep oceanic channel E. of the Sunda continental shelf.

Macassar Oil is the trade name of a hair oil originally made from a Mauritius iron-wood or from the Indian kousumba tree. Pale or golden, its ingredients sometimes include coconut or safflower oils.

Macaulay Lord. English historian. Thomas Babington Macaulay was born at Rothy Temple, Leicestershire, Oct. 25, 1800, his father being Zachary Macaulay, a London merchant. His early home was at Clapham where his parents were members of the Evangelical sect. In 1818 he entered Trinity College, Cambridge, where he had a very brilliant career, and in 1824 he was made a fellow. He became a barrister, but earned a living by writing, chiefly for the *Edinburgh Review*.

A convinced Whig, Macaulay was, in 1830, returned as M.P. for the pocket borough of Calne. In 1833 he was elected for Leeds, but in 1834 he left Parliament to become legal advisor to the Council of India. There he remained for four years, and left his mark upon the legislation of the country. In 1839 he was elected M.P. for Edinburgh, and joined the Whig ministry as Secretary of War. He left office in 1841, but returned as Paymaster-General in 1846. In 1847 he lost his seat but was given one of the members for Edinburgh, 1852-56. In 1856 he was made a baron and on Dec. 28, 1859, he died unmarried and was buried in Westminster Abbey.

The chief of Macaulay's writings are his *Essays*, his *History of England* and his poems,

especially *The Lays of Ancient Rome*. The *Essays* show him as a descriptive writer of the first rank, but are more remarkable for the wealth of his knowledge and the fulness and aptness of his allusions. As exercises in criticism they are also notable, especially, perhaps, the one on Milton. The first volume of the *History* appeared in 1848, but it was unfinished when the author died, the fifth and last volume being published in 1861. As a poet Macaulay wrote vivid, swinging verse, full of lines that linger in the memory, as do some of his great prose passages. In their own sphere *The Lays of Ancient Rome* and *The Armada* are unrivalled.

Macaulay *Rosa*. English novelist and essayist. She spent her childhood in Italy and was educated at Oxford. Her publications, which are marked by a lively humour, include *What Not*, 1919; *Potterism*, 1920; *Dangerous Ages*, 1921; *Mystery at Geneva*, 1922; *Told by an Idiot*, 1923; *Orphan Island*, 1924; *Creux Train*, 1926; *Keeping up Appearances*, 1928; *Staying with Relations*, 1930; two books of verse, 1914 and 1919, *A Casual Commentary*, essays, 1925, and *Some Religious Elements in English Literature*, 1931.

Macaw Genus of long-tailed S. American parrots (*Aras*). They range from Mexico to Paraguay. The commonest are the blue-and-yellow, the red-and-yellow and the hyacinthine. Distinguished by their gorgeous plumage, some of them 3 ft. long, including tail, they are gregarious forest denizens and incorrigible screamers. Feeding on fruits and nuts, they thrive in captivity.

Macbeth King of the Scots. He became king in 1040, securing the throne by murdering Duncan. He reigned for 17 years, and was killed during a battle with Duncan's son, Malcolm, and his English ally, Siward, Earl of Northumbria. The story as told by Holinshed in his *Chronicle* served as the basis of one of Shakespeare's greatest tragedies.

McBey *James*. Scottish painter and etcher. Born at Newburgh, Aberdeenshire, Dec. 23, 1883, he entered a bank at 15, but studied art privately, and began etching at 17. His first exhibition was in London in 1911. He has made etchings of Scotland, Wales, Holland, Spain, Venice, Morocco and France, and in 1917-18 went as official artist to the Egyptian Expeditionary Force.

Maccabees Jewish family distinguished in the revolt against Syrian tyranny, 2nd century B.C. Attempts under Antiochus Epiphanes to establish pagan altars in Palestine were forcibly resisted by Mattathias, an aged priest of the Hasmonaean family, who fled to the mountains with his five sons, John, Simon, Judas, Eleazar and Jonathan, 168 B.C. After his death the war was continued under his son, Judas Maccabaeus, whose name, "hammer," came to designate the family. After protracted struggles he retook Jerusalem, restored the Temple service and was slain in battle 161 B.C. The revolt ended in a Jewish monarchy under Roman sanction. The Old Testament Apocrypha include two historical books on this period, 1 and 2 Maccabees. See HYRCANUS I.

McCardie *Henry Alfred*. British judge. Born in Edgbaston, July 18, 1869, he was called to the Bar in 1894, and in 1916 became a Bench of the Middle Temple

and a judge of the High Court. His advanced views and outspoken comment on social affairs have made the "bachelor judge" a famous figure.

McCarthy *Lillian*. English actress. She was born at Cheltenham, Sept. 23, 1875, and educated there. She has played leading parts in England, Australia and the United States with Wilson Barrett; and in Shaw plays between 1905-08. She assumed management of the Little Theatre in 1911, playing Margaret Knor in *Fanny's First Play*, and later played with Sir Herbert Beerbohm Tree and Sir Martin Harvey. She became manager of the Kingsway Theatre in 1912 and 1919 and produced plays by Eden Philpotts and Arnold Bennett, afterwards playing with Matheson Lang in *The Wandering Jew*. In 1920 she married Sir F. W. Keble.

Macclesfield Borough and market town of Cheshire. It stands on the Little river Bollin, 18 m. from Manchester, and 166 from London, on the L.M.S. Rly. A canal connects the town with the Grand Union system. The chief industry is the manufacture of silk. Pop. (1931) 34,902.

McClintock *Sir Francis Leopold*. British sailor. He was born at Dundalk on July 8, 1819, and entered the navy in 1831. For tracing of the fate of Sir John Franklin's expedition to the Polar Regions he was knighted in 1860. He wrote *The Fate of Sir John Franklin*. He later sounded the North Atlantic for the electric cable, and was created a K.C.B. in 1891. He died Nov. 17, 1907.

McCormack *John*. Irish vocalist. Born at Athlone, June 14, 1884, he was educated in Dublin, where he sang in the choir of the Roman Catholic cathedral. He then went to Milan for study, and in 1907 appeared for the first time in opera in London. Possessing a beautiful tenor voice, he sang for several seasons at Covent Garden, also in concerts in London, New York, Naples, Melbourne and elsewhere. His singing of Irish folk songs was also noteworthy. In 1917 he became an American citizen, and in 1924 the pope made him a count and an official at the papal court.

Maccunn *Hamish*. Scottish composer. Born at Greenock, March 22, 1868, he studied music in London. From 1888-94, he was Professor of Harmony at the Royal Academy of Music, London. His works include the operas *Jeanie Deans* and *Diarmid*, some cantatas and the popular overture *Land of the Mountain and the Flood*. Maccunn died Aug. 2, 1916.

Macdonald Name of a famous Scottish clan. They were powerful in Argyllshire and the islands in the 12th century, or earlier, and claimed the position of honour on the right in battle. Their chieftain was the Lord of the Isles. Later Macdonalds settled in other parts of Scotland and there were Macdonalds of Glencoe and other branches.

Macdonald *Flora*. Scottish heroine. She was born in 1722 and came into notice in 1746. In that year Prince Charles Edward escaped to the Hebrides after Culloden. Flora secured a passport for herself and her servants, one of whom was the disguised prince, and succeeded in taking him to Portree and so enabling him to escape to France. She was later put in prison, but was released in 1747. In 1750 she married

Alan Macdonald, and went with him to America where he served in the British Army just the colonists. She came home in 1779, and died at Kingsburgh, March 6, 1790.

MacDonald George. Scottish writer. Born Dec. 10, 1824, at Huntly, Aberdeenshire, he was educated at the University of Aberdeen, and was minister at Arundel and Manchester. For reasons of health he soon gave up the ministry and devoted himself to writing and lecturing. He lived a good deal at Bordighera, but died at Ashted, Surrey, Sept. 18, 1905.

MacDonald was a popular author, although the dialect in his novels makes them irksome to some readers. They include: *David Elginbrod*, *Alec Forbes of Howglen*, *Robert Falconer*, *The Marquis of Lossie*, *Sir Gibbie* and *Sailed with Fire*, and reflect Scottish life and ideas of the time. For children, with almost equal success, he wrote *At the Back of the North Wind* and *The Princess and the Goblin*. His many poems include *Where do you come from, baby dear*, and the *Diary of an Old Soul*.

MacDonald James Ramsay. British politician. He was born at Lossiemouth in humble circumstances, Oct. 12, 1866, and educated at the elementary school there. Settling in London he worked as a clerk and then as a journalist. He became identified with the Fabian Society and the Labour Party and was soon an influential member of the group that inspired this movement. He edited *The Socialist Review* and wrote a good deal on Socialism. In 1900 he was made Secretary of the Labour Party, a post he held for twelve years, and for the next twelve he was its treasurer. From 1900 to 1904 he was a member of the London County Council.

In 1895 MacDonald stood for Parliament for Southampton, but failed to secure election, as he did at Leicester in 1901. In 1906 he was returned for Leicester and he held the seat until 1918 when, owing to his pacifist ideas during the Great War, he was defeated. He was absent from Parliament until 1922, when he was returned for the Aberavon division of Glamorganshire, a seat which he exchanged in 1929 for the Seaham Harbour division of Durham.

Having been from 1906 to 1909 Chairman of the Independent Labour Party, MacDonald was, in 1911, chosen leader of the Labour Party in the House of Commons. He held this position until 1914, and returned to it in 1922, when the Labour Party was the official opposition in Parliament. As leader he was called upon in Jan. 1924, to form a ministry and he became the first Labour Prime Minister in Great Britain. He also filled the office of Foreign Secretary until the ministry fell before the end of the year. Having been leader of the Opposition for a period of nearly five years, he was called upon, after the general election of 1929, to form the second Labour Ministry. This was in office under his premiership until a financial crisis led to its break-up in Aug. 1931. With a few colleagues and followers MacDonald acted with the other two political parties and a National Government was formed, with himself as premier. This was confirmed in office when the general election of Oct. 1931, sent an immense majority to its support in the House of Commons. MacDonald himself won a signal victory at Seaham over a Socialist opponent. In 1932

he underwent two operations on his eyes, but was able to preside over the Lausanne conference in July.

MacDonald has travelled very widely and is a man of considerable culture. His books include *Socialism and Society*, *Labour and the Empire*, *The Awakening of India*, *The Socialist Movement*, *Parliament and Revolution*, *Wanderings and Excursions*, and a *Memoir* of his wife. In 1912-14 he was a member of the royal commission that inquired into the public services of India, and he has received numerous academic and other honours.

MacDonald married, in 1896, Margaret Ethel, daughter of J. H. Gladstone, the eminent scientist, a woman of unusual gifts. She died in 1911, leaving five children. One son, Malcolm, was returned as M.P. for the Bassetlaw division in 1929 and again in 1931. In 1931 he was appointed Under-Secretary for the Colonies.

Macdonald Sir John Alexander. Canadian statesman. Born in Glasgow, Jan. 11, 1815, he went to Canada as a child, his parents settling at Kingston. In 1836 he became a barrister and was elected to the legislature of Ontario in 1844, becoming prominent as a politician. In 1856 he was Attorney-General of Canada West and was joint-leader of the Tache-Macdonald administration for the confederation of Canada. When, in 1867, the Dominions came into being, Macdonald was selected as the first Prime Minister. He retained this office until 1873 and returned to it in 1878, remaining Prime Minister until his death at Ottawa, June 6, 1891.

Macdonald, the leader of the Conservative Party, was responsible for enlarging the federation by adding British Columbia to it. He was knighted in 1867, and on his death his widow was made a baroness. His residence, Earnccliffe, Ottawa, is now public property.

Macduff Thane of Fife. He is said to have lived in the 11th century and to have taken part in the rising against Macbeth. He appears in Shakespeare's plays.

Macduff Burgh, market town and seaport of Scotland. It stands at the mouth of the river Deveron, 50 m. from Aberdeen, on the L.M.S. Rly. There is a modern harbour for the shipping and the fishing. On the other side of the Deveron is Banff, and a bridge connects the two. The old name of the burgh was Doune. Pop. (1931) 3276.

The eldest son of the Duchess of Fife is called the Earl of Macduff.

Mace Jem. English pugilist. He was born at Beeston, Norfolk, April 8, 1831. In 1861, by beating Sam Hurst, he won the championship of England. He lost it, but succeeded in recovering it, and held the distinction until he retired in 1871. Mace then gave lessons in boxing. He died Nov. 30, 1910.

Mace Spice prepared from the fleshy covering of the nutmeg. It is dried in the sun and possesses aromatic properties, which render it of use for flavouring.

Mace Staff with a massive head, formerly a weapon of war but now used as a symbol of authority. In early times its use as a weapon was allowed to mediæval clerics who were forbidden to shed blood by the sword. As it came into ceremonial use it became more ornate and was often richly decorated. In the House of Commons the mace is laid on the table while the Speaker is in the chair.

Macedonia Territory in the Balkan Peninsula. It stretches from the western frontier of Bulgaria to the Gulf of Salonika.

Western Macedonia is mountainous and contains three large lakes, Ochrida, Presba and Ostrovo; Eastern Macedonia has two valleys, watered by the rivers Varda and Struma. Agriculture is the chief occupation, and there is much iron ore and magnesite, so far scarcely developed. The chief towns are Salonica, Monastir, Uskub and Adrianople. Agriculture is the staple industry.

Macedonia became strong after 359 B.C. under Philip and Alexander the Great, and held sway over the rest of Greece until conquered by Rome in 168 B.C. Peopled later by Slavonic races, it was part of the Bulgarian empire from 800-1000, and after a hundred years of Serbian rule, fell to the Turks in 1689. From 1875 there were constant revolts of the Christian Bulgarians against the Turks, culminating in a great massacre in 1903.

Macedonia was a field of battle during the Balkan wars, and after 1913 was divided between Greece and Serbia, but when the World War broke out in 1914 Allied troops were sent to Salonica, and Bulgaria being eventually defeated, Macedonia was divided after 1919 between Greece and Yugoslavia.

McEvoy Ambrose. English portrait-painter. Born at Crudwell, Wiltshire, Aug. 12, 1878, he was encouraged by his father to take up art, and entered the Slade School in 1893. He became friendly with Augustus John, and soon gained a reputation for clever portraits in line and wash, and became a fashionable portrait-painter. He was elected A.R.A. in 1924, and died Jan. 4, 1927.

Macfarren Sir George Alexander. British musician. Born in London, March 2, 1813, he was the son of George Macfarren, a writer of plays. He studied at the Royal Academy of Music, where, in 1837, he was made professor. In 1875 he was made principal of the college, and he was also Professor of Music at Cambridge, but he was perhaps better known as the conductor of the orchestra at Covent Garden Theatre from 1845 to 1875. In 1883 he was knighted, and he died Oct. 31, 1887. Macfarren composed many operas, several cantatas and oratorios as well as many other pieces. He wrote books on harmony and other subjects. In 1866 he became blind.

Macgill Patrick. Irish novelist and poet. He was born in Donegal in 1870, and was educated at a mountain school. He worked between the ages of 12 and 19 about the farm and as a navvy, and joined the staff of the *Daily Express* in 1911. He served in the British Army during the Great War. His books include *Songs of a Navvy*, *Songs of the Dead End*, *The Great Push*, *Soldier Songs*, *Glenmornan*, *Moleskin Joe* (a play), *Fear and Suspense* (a play produced in London in 1930).

McGill University University in Canada. It was founded at Montreal by money left by James McGill and dates from 1821. Since then it has had other benefactors including Lord Strathcona. The university has a fine range of buildings on Mount Royal at Montreal and facilities in the shape of laboratories, libraries, etc., for every branch of study. There are residential halls and several theological and other colleges are affiliated

to the university. It is open to women equally with men.

Macgillicuddy's Reeks

Chain of mountains in Co. Kerry, Irish Free State. Carratuohill (3414 ft.), the highest of the range, is also the highest peak in Ireland.

Machiavelli Niccolo. Italian writer. He was born in Florence, May 3, 1469, his father being a lawyer. He entered the service of the city and from 1498 to 1512 occupied a high position, being sent on several missions to foreign rulers. In 1512, on the return of the Medici to power, he lost his position and was for a short time in prison. He then went to live in the country, and remained there until his death, June 20, 1527. He was buried in Santa Croce, Florence.

Machiavelli's masterpiece, dedicated to Lorenzo the Magnificent, is *Il Principe* or *The Prince*, one of the world's great manuals of statecraft. It is based on the theory that the ruler, or prince, is justified in taking any steps that will maintain his supremacy. The state under his control is neither moral nor immoral: it acts without regard to morality, and thus the ruler may, if necessary, resort to deceit and treachery. He also wrote *A History of Florence*, *The Art of War* and *Discourses on the First Decade of Titus Livius*.

Machicolation Series of corbels or brackets supporting the parapet or battlements in mediaeval castles or fortifications. Openings between the corbels were left in the overhanging stone floor of the rampart to allow of the discharge of missiles upon an attacking force.

Machine Gun Firearm provided with a mechanism for the rapid discharge of rifle bullets or small shells. The mechanism increases the rapidity of charging, the firing and the ejection of spent cartridges.

In the mitrailleuse type, the gun was worked by turning a handle, the Gatling gun by means of a crank, the Nordenfelt by a lever action, the Gardner by use of a winch. In the Maxim gun automatic action was introduced, a spring recoil being used, and a similar action is seen in the Vickers type. The Hotchkiss gun is worked by the action of the propellant gases upon a piston mechanism.

In 1915 a Machine Gun Corps was formed. It was divided into four branches: Infantry, cavalry, heavy and motor. In 1919 a school for training officers was opened at Sleaford, but in 1921 the corps was disbanded. There is a memorial at Folkestone to those of its members who fell in the Great War. Machine gun detachments are now attached to each battalion of infantry.

Machynlleth Urban district and market town of Montgomeryshire. It stands near the Dovey, 21 m. from Aberystwyth, on the G.W. Rly. It is visited by tourists and for the fishing. Pop. (1931) 1892.

Mackail John William. British scholar. Born in 1859, he was educated at Balliol College, Oxford, and became an inspector under the Board of Education. His works include a fine verse translation of Homer's *Odyssey*, a valuable primer on *Latin Literature*, *Lectures on Greek Poetry* and *Lectures on Poetry*. He edited *Select Epigrams from the Greek Anthology*, and wrote lives of

William Morris and **George Wyndham**. He was Professor of Poetry at Oxford, 1906-11. In 1932 he was chosen president of the British Academy.

Mackail married **Margaret**, daughter of **Sir E. Burne-Jones**, and their son, **Denis George Mackail**, won fame by his humorous stories. These include *Bill the Bachelor*, *According to Gibson*, *Greenery Street*, *How Amusing*, *The Square Circle* and *David's Day*. He was born June 3, 1892, and was educated at S. Paul's School and Balliol College, Oxford.

Mackay Town and seaport of Queensland. It stands on the coast, at the mouth of the river Pioneer, 625 m. to the N.W. of Brisbane. It has a fine modern harbour, and from it much of the produce of the state is exported. Pop. 7250.

McKenna **Reginald**. English financier. Born in London, July 6, 1863, he was educated at King's College, London, and Trinity Hall, Cambridge. He rowed against Oxford in 1887. He was called to the bar in 1887, but soon turned his attention to politics, and was elected Liberal M.P. for N. Monmouthshire in 1895. In 1905 he was appointed Financial Secretary to the Treasury. From 1907-08 he was President of the Board of Education: from 1908-11, First Lord of the Admiralty: from 1911-15, Home Secretary: and in 1915-16, Chancellor of the Exchequer. He introduced the war loan of 1915 and was responsible for the duties on certain imports called the **McKenna Duties**. He lost his seat in Parliament in 1918, and in 1919 was made Chairman of the Midland Bank, assisting the Government in an advisory capacity on several occasions.

McKenna **Stephen**. British novelist. Born Feb. 27, 1888, he was educated at Westminster School and Christ Church, Oxford. From 1915-19 he served in the War Trade Intelligence Department, visiting the U.S.A. in 1917. The first of his many novels, *The Reluctant Lover*, appeared in 1912. Others include *Sonia*, 1917; *Midas & Son*, 1919; *Vindication*, 1923; *An Affair of Honour*, 1925; *The Secretary of State*, 1927; and *The Dutchley Inheritance*, 1929. In 1932 appeared *The Way of the Phoenix*.

Mackennal **Sir Bertram**. Australian sculptor. Born in Melbourne in 1863, he was educated in Australia afterwards studying art in Paris. His work soon attracted attention, and he was selected to carve several statues of Queen Victoria and later to design the coinage issued after the accession of George V. His other work includes memorials to Edward VII. in S. George's Chapel, Windsor, and elsewhere, and the national memorial to T. Gainsborough. In 1909 MacKenna was made A.R.A., and in 1922 R.A. He was knighted in 1921 and died Oct. 10, 1931.

Mackensen **August von**. German soldier. Born in Saxony, Aug. 6, 1849, he was educated at Torgau and Halle and entered the Saxon Army in 1869. After this became part of the army of the new empire in 1871 he rose rapidly in rank, becoming, in 1903, head of an army corps. He came into notice by his services against the Russians, and for his work on the E. front in 1914-15 was made a field marshal. He led the armies that conquered Serbia and later crushed Rumania, for the administration of

which he was responsible until Nov., 1918. For a time he was interned, but in 1919 he was allowed to return to Germany.

Mackenzie River of Canada. Rising near Mt. Brown in British Columbia, for the first 680 m. it is the *Athabasca*: from Lake Athabasca and the Great Slave Lake for about 600 m. it is the Great Slave River, with the Peace and the Finlay as its tributaries. The Mackenzie River proper flows from Great Slave Lake to Mackenzie Bay in the Arctic Ocean. It is 1000 m. long.

One of the districts of the N.W. Territories is called the Mackenzie. It covers over 560,000 sq. m., reaching from British Columbia to the Arctic Ocean.

Mackenzie **Sir Alexander**. Scottish explorer. Born about 1755 in Inverness, he went to Canada in the service of one of the trading companies in 1779. For the next 20 years he did a great deal of exploring. He found the mouth of the river named after him, the Mackenzie: he crossed the Rocky Mts. to the Pacific coast: and journeyed along the St. Lawrence. In 1801 he published an account of his travels. Knighted in 1802, he died March 11, 1820.

Mackenzie **Compton**. British author. He was born at West Hartlepool, January 17, 1883, and was educated at S. Paul's School, London, and at Oxford. He served in the South African and Great Wars, and directed the Aegean Intelligence Service with great distinction in 1917.

He has written *The Passionate Elopement*, 1911; *Carnival*, 1912; *Sinister St.*, 1913-14; *Poor Relations*, 1919; *Rich Relatives*, 1921; *Rogues and Vagabonds*, 1927; *Gallipoli Memories*, 1929; *More Athenian Memories*, 1932 and three plays. He was elected Rector of Glasgow University in 1932.

Mackenzie **Sir Morell**. British surgeon. Born at Leytonstone, July 7, 1837, he was educated in London and studied at the London Hospital, in Paris and in Vienna. He won a prize for an essay on diseases of the larynx and soon became one of the leading specialists in that branch of surgery. He was one of the founders of the Hospital for the Throat, was one of the first to use the laryngoscope and wrote a standard book, *Diseases of the Throat and Nose*. To the general public he became known in 1887 when he was consulted by the Crown Prince of Germany, later the Emperor Frederick, on whom he wrote a book, *Frederick the Noble*. Mackenzie was knighted in 1887 and died Feb. 3, 1892.

Mackenzie **William Lyon**. Scotsman and Canadian politician. He was born in Angus, March 12, 1795, and in 1820 settled in Canada. He made his home in Toronto, and, in 1824, he started *The Colonial Advocate*. He was elected to the legislature, but, owing to his views on the need for constitutional reforms he was not allowed to sit for some ten years. In 1834 he secured his seat and, as the leader of an influential party, declared for a republic. He took part in the rising that broke out in 1837 and when this was crushed, escaped to the United States where he was arrested and imprisoned. In 1849 he was allowed to go back to Canada and was re-elected to the legislature. He died Aug. 29, 1861.

Mackerel Marine food-fish related to the tunny, abundant in the N. Atlantic (*Scomber scombrus*). The slightly compressed body, commonly 10-12 in. long,

rising to 18 in., mostly covered with minute scales. 1. black-barred, bluish-green above and silvery beneath. Shoals move between the open sea and coastal water, and are mostly taken in drift-nets, especially off Cornwall and the E. coast of Britain, in May-June and Sept.-Oct. The Spanish mackerel, *S. colias*, differs in being big-eyed, with larger scales, and an air-bladder.

McKinley William. American president. Born in Ohio, Jan. 29, 1843, he was educated to become a lawyer. After serving in the Civil War, he practised law at Canton. In 1877 he was sent to Congress by the electors of Ohio, and he had a good deal to do with the introduction of the high tariff of 1890, sometimes called the McKinley Tariff. In 1896 he was the Republican candidate for the presidency and he succeeded in defeating W. J. Bryan, who advocated bimetallism. There was another contest between them in 1900 and again McKinley was the victor. During his first term of office the war with Spain took place: his second had only just begun when he was shot by an anarchist at Buffalo, Sept. 6, 1901. He died on the 14th, when Roosevelt became president.

Mackintosh Sir James. Scottish writer. Born, Oct. 24, 1765, he was educated for the medical profession in Aberdeen and Edinburgh, but he settled in London and became a barrister. He became known by his *Vindiciæ Gallicæ*, a defence of the French Revolution, written in answer to Burke, which won for him the honour of French citizenship. In 1804 he went out to Bombay as a judge and in 1813, after his return to England, was elected M.P. for Nairn and made Professor of Law at the East India College, Haileybury. From 1830-32 he was a member of the Board of Control for India. He died May 22, 1832.

Maclaren Archibald Campbell. English cricketeer. Born in Manchester, Dec. 1, 1871, he was educated at Elstree and Harrow. For four years he played cricket for Harrow against Eton and in 1891 he was made captain of the Lancashire county team. For the next 20 years or so he was one of the outstanding figures in the game, a superb batsman and fieldsman and a captain of unusual discernment. He played many times in test matches in England and Australia and was captain of the English team at home in 1899, 1902 and 1909 and in Australia in 1897-98 and 1901-02. In 1895 he scored 424 runs at Taunton, the highest score in first-class cricket. He wrote *Cricket, Old and New*, 1924.

Maclaren Ian. Name taken by the Scottish writer, Rev. John Maclaren Watson. Born at Manningtree, Essex, Nov. 3, 1850, he was educated at Stirling and in Edinburgh. He became a minister of the Free Church of Scotland in 1874, his first church being in Edinburgh. He was at Logiealmond and in Glasgow before becoming minister of the influential church in Sefton Park, Liverpool, where he was from 1880 until just before his death, May 6, 1907.

As Ian Maclaren, he wrote in 1894 some sketches of Scottish life called *Beside the Bonnie Brier Bush*. The book had an extraordinary success and was followed by others including *The Days of Auld Lang Syne* and *Kate Carnegie*. He also wrote *The Mind of the Master*, and other theological books.

Maclean Sir Donald. Scottish politician. Born in Tiree, he became a

solicitor in London. In 1906 he entered the House of Commons as Liberal M.P. for Bath. From 1910-18 he represented the counties of Peebles and Selkirk and from 1918 to 1922 Peebles and Midlothian. In 1929 and 1931 he was elected for a division of Cornwall. From 1911 to 1916 he was Deputy Chairman of Committees and in 1917 he was knighted. In 1919 Mr. Asquith, having lost his seat, Sir Donald was chosen the leader of the Liberal group in Parliament, a position he retained until 1922. In Aug., 1931, he joined the National Government as President of the Board of Education. He died suddenly, June 15, 1932.

Macleod Norman. Scottish writer and preacher. Born at Campbelltown, Argyllshire, June 3, 1812, and educated for the ministry, his first churches were at Loudoun and Dalkeith. From 1851 till his death, June 16, 1872, he was minister of the Barony Church, Glasgow, and author of the popular *Reminiscences of a Highland Parish*, 1867. He edited *Good Words* from 1860 to 1872 and was a friend of Queen Victoria.

Maclise Daniel. British painter. Born in Cork, the son of a Highland soldier, Jan. 25, 1806, he became a clerk in a bank there. He soon left this to study art and showed such promise that he was helped to study in London. He was elected A.R.A. in 1835 and R.A. in 1840, and in 1866 was offered the presidency of the Royal Academy. He died in Chelsea, April 1, 1870.

Maclise's great pictures include "The Banquet Scene in Macbeth," "The Ghost Scene in Hamlet," in the Tate Gallery, "Snap Apple Night," "Caxton's Printing Office," "Malvolio and the Countess" and "Shakespeare's Seven Ages." He helped to decorate the House of Lords, painted a portrait of his friend, Charles Dickens, and illustrated books.

Macmahon Marie Edmé Patrice Maurice. French soldier. He was born June 13, 1808, being descended from an Irish soldier who had settled in France after 1688. He served in Algiers and in the Crimea and was head of the army that, in 1864, defeated the Austrians at Magenta, after which he was made a Marshal and a Duke and appointed Governor-General of Algeria. He returned home in 1870 to command an army corps in the war with Prussia. At Worth he was defeated and at Sedan he was made prisoner. After his release he put down the Commune and established the authority of the republic. This led, in 1873, to his election as president. His actions aroused a good deal of hostility and in 1879 he resigned. He died Oct. 17, 1893.

McNeill James. Irish politician. Born Aug. 27, 1869, in Co. Antrim, he was educated at Blackrock College, Dublin, and at Emmanuel College, Cambridge. In 1890 he won a position in the Indian Civil Service and he remained in India until 1921. Returning to Ireland he was made Chairman of the Dublin County Council and took part in drawing up the constitution of the Irish Free State. From 1923 to 1927 McNeill was High Commissioner for the Free State in London, and in 1928 he was made Governor-General.

Maçon City of France. It stands on the Saône, 45 miles from Lyons, and is the capital of a department. The city gives its name to a popular variety of Burgundy. Pop. 15,000.

Macquarie River of New South Wales, Australia. It is formed by a union of the Fish and the Campbell rivers and flows through New South Wales for about 350 m. until it joins the Darling. It waters a rich agricultural district and on its banks are Bathurst and Wellington.

An island in the South Pacific also bears this name. It belongs to New Zealand and on it is a meteorological station. Its area is 170 sq. m.

Maquarie Bay is on the west coast of Tasmania. It forms a good harbour.

Macramé Trimming made by knotting together long fringe-threads into geometrical patterns. Presumably of Arabian origin, it reached Moorish Spain, where "Morisco fringes" are still made, and N. Italy, whose knotted lace experienced a 18th-century revival of fashion in macramé lace, for wedding gifts in Latin America and for recreative lace making in Victorian England.

Macready William Charles. English actor. Born in London, March 3, 1793, and educated for the law, he took to the stage and made a great reputation in Shakespearean parts. Other successes were won with Helen Faucit in Lytton's plays, *The Lady of Lyons* and *Richelieu*. From 1837-39 he was manager of Covent Garden: from 1839-41 of the Haymarket and from 1841-43 of Drury Lane. He went three times to the United States. In 1851 he retired, and he died at Cheltenham, April 27, 1873, leaving some interesting diaries.

His son, Sir Cecil Frederick Nevill Macready, was a soldier with a long record of active service. In 1918-20 he was commissioner of the metropolitan police and in 1920-22 he was in command of the troops in Ireland.

Macrinus Roman emperor whose full name was Marcus Opellius Severus. Born in 164, he became an officer of the Praetorian Guard and, having induced the soldiers to murder Caracalla, was proclaimed emperor in 217. He made war on Parthia, but this being unsuccessful, the soldiers turned on him and he was put to death in 218.

MacWhirter John. Scottish artist. He was born near Edinburgh in 1839 and studied art at the Edinburgh School of Design. He exhibited at the Royal Scottish Academy and, was elected as Associate in 1864, also at the Royal Academy, becoming R.A. in 1893. MacWhirter was chiefly a landscape painter, many of his works being studies of scenery in the Highlands and in Italy. He was the author of *Landscape Painting in Water Colours*. He died Jan. 28, 1911.

Madagascar Island in the Indian Ocean. It has a tropical climate, high mountains (Amboro, 9490 ft.), large rivers flowing west, extensive lakes and valuable forests and minerals.

The natives are of Melanesian and Polynesian stock. Education is compulsory from 8 to 14. The chief industry is agricultural and the chief towns are Antananarivo in the highlands and Tamatave on the east coast. Madagascar became a French possession in Jan., 1896, the last native sovereign being Ranaivalona III. (1861-1916). The area is estimated at about 241,000 sq. m. and the pop. at about 3,621,000, of whom some 18,000 are French and 11,000 foreigners.

Madden Sir Charles Edward. British admiral. Fourth Sea Lord of

the Admiralty (1910-11), he served in the Battle of Jutland in 1916, and was mentioned in despatches. He was Admiral of the Fleet in 1924, and First Sea Lord of the Admiralty (1927-30) retiring in 1930. He was created a baronet in 1919, and awarded the O.M. in 1931. He also holds many foreign decorations.

Madder Pigment obtained from the roots of the madder plant, *Rubia tinctorum*. This is a perennial plant, growing in Southern Europe and Asia Minor. Formerly it was the source of the dyestuff, turkey red, replaced now by alizarin derivatives. Madder forms a series of richly-coloured, transparent lakes used as water colours.

Madeira Island group in the North Atlantic Ocean belonging to Portugal. The principal island, which gives its name to the group, is a favourite health resort, mountainous and fertile, producing wine, sugar and fruit.

The chief town is Funchal, the shipping centre, and a seat of a Roman Catholic bishopric. Pop. 179,000.

Madeira River of South America, a tributary of the Amazon. It is formed by a union of the Mamoré and the Beni and flows for 900 m. until it falls into the Amazon near Manaus. The greater part of its course is navigable. It is about 2 m. wide where it joins the Amazon.

Madison James. American president. Born in Virginia, March 16, 1751, he became a member of the legislature and helped to frame the American constitution. At first he acted with Alexander Hamilton, but later adopted the views of Hamilton's opponents and with Jefferson tried to limit the power of the central government. When, in 1801, Jefferson became president, Madison was made Secretary of State and held that post until 1809. He was then elected president, was re-elected in 1812, retired in 1817, and died June 28, 1836.

Madoc Second son of Owen Gwynedd, Prince of Wales. According to a 15th-century Welsh poem, after disputes over the succession to the Welsh crown, he sailed westward with ten ships. In Tudor days the legend arose that he had discovered America; this, unsupported by evidence, is the theme of Southey's poem, *Madoc*, 1805.

Madonna Italian word, "my lady," specifically reserved to denote the Virgin Mary when represented in art. Representations in 3rd-century catacombs inaugurated a practice to which artists have devoted their highest powers in all ages. Madonnas occur as paintings on canvases, wood and fresco, works in mosaic, or sculptures in wood, ivory, metal and stone. Of the many madonnas painted by the great Italian artists pride of place is usually given to Raphael's *Sistine Madonna*, now in Dresden. See LILY.

Madras Capital of Madras Presidency and chief port on the east coast of India. It extends for 9 miles along the coast, and for 4 miles inland, and was founded in 1640 by the East India Company. There are cotton mills, iron foundries, engineering works and cigar factories, hides, cotton and oil seeds are exported, and timber, coal, grain and machinery are imported. Pop. 526,900, mostly Hindus.

Madras Presidency of British India. Occupying the entire south of the Indian peninsula, it is divided into the high interior tableland, the long, broad east coast,

and the short west coast, and its climate varies with the height. Its chief industry is agriculture. It is governed by a system which extends from a British Governor through various boards to village committees.

Madrid Capital of Spain. On the left bank of the river Manzanares, it was taken by the Moors in the tenth century, but became the capital of Philip II. in 1560. It stands on a plateau, and has a bracing, if variable climate. Originally the chief residence of the king, it is now the seat of the republican parliament. The Prado picture gallery and the university are among its most important buildings. Among its many products are leather, pottery, carpets, jewellery, soap, paper and ironwork. Of its three broadcasting stations, the principal has a wavelength of 424.3 M. and operates on 2 kW. Pop. 808,366.

Madrigal Polyphonic vocal composition. It comprises at least three (usually five or six) independent voices, proceeding in imitative counterpoint, to be sung as an unaccompanied chorus. Derived from the adaption of ecclesiastical modes and descent to secular use the Flemish and Italian Madrigal appeared in the 15th century. In England the madrigals of the 16th and 17th centuries marked the transition from vocal to instrumental chamber music. Arcadelt, Josquin de Prés, Marenzio, Morley, Edwards and Weekes were composers of madrigals.

Madura City of India. It is in Madras Presidency, on the river Vaigai, 270 miles by railway from Madras city. The city is now a centre for the manufacture of cotton goods and other textiles. Pop. 138,900.

Madura Island of the Dutch East Indies. Covering 1770 sq. m., it is a dependency of Java. The island has some hot springs. The people live mainly by rearing cattle and fishing. Pop. 1,630,000.

Maeander River of Asia Minor now called Menderes. It rises in the highlands of the interior and flows mainly south into the Aegean Sea. Its winding course is the origin of the English word "meander."

Maecenas Gaius Cilnius. Roman patron. A man of great wealth, he lived at Rome in the time of Augustus, with whom he was on friendly terms. In 42 B.C. he helped to arrange the peace with Mark Antony and later was employed on public duties of importance. His name and fame, however, rest upon his munificence as a patron of men of letters, notably Virgil and Horace, who were often at his hospitable villa on the Esquiline Hill. He died in 8 B.C.

Maelström Name given to a famous whirlpool. It is situated between the Islands of Lofotodden and Vaerö, in the Lofoten group, off the north-east coast of Norway. The maelström is the result of opposing tidal currents sweeping through a narrow channel at certain states of the tide.

Maentwrog Village of Merionethshire. It is 3 m. from Festinog amid beautiful scenery. Near here an artificial lake, 4 m. long, has been constructed. This provides power for generating electricity which is distributed from Crewe and Wrexham.

Maes Nicholas. Dutch painter. Born in Dordrecht, in 1632, he studied under Rembrandt, worked as a portrait painter, and died at Amsterdam in 1693. His "Card

Players," "The Idle Servant," and "The Dutch Housewife" are in the National Gallery, London.

Maesteg Urban district of Glamorgan-shire. It stands on a little river, the Llyfnn, 8 m. from Bridgend, on the G.W. Rly. The chief occupation is found in the coal mines. Pop. (1931) 25,552.

Maeterlinck Maurice. Belgian dramatist. Born at Ghent, Aug. 29, 1862, he was educated by the Jesuits and at the university of his native city. He studied law in Ghent, but soon gave up law for literature. In 1889 he published a volume of verse and in 1890 a play, *Princesse Maleine*. Other plays followed, one being *L'Oiseau Bleu*, which, as *The Blue Bird*, made his name known in Great Britain. Among the remainder are *Les Aveugles*, *Pelléas et Mélisande*, *Monna Vanna* and *La Mort de Tintagiles*, all showing the mystical and fatalistic strain that is the distinctive feature of his work. He also wrote some volumes of prose, including *Le Trésor des Humbles* and *La Vie des Abeilles*, and made translations of some of the English dramatists. In 1911 he received the Nobel Prize for literature. Most of his books have been translated into English by A. Teixeira de Mattos.

Mafeking Town of Cape Province, S. Africa. It is 189 m. from Johannesburg, the chief town of British Bechuanaland and an important railway station. Pop. 2300.

During the war against the Boers the town was defended by a few soldiers and civilians under Col. R. S. Baden-Powell from Oct. 13, 1899, to May 17, 1900, when it was relieved. The event caused great excitement in England and Mafeking Night became notable.

Mafia Secret society in Sicily. It arose early in the 19th century and soon became very powerful. The members, called *Mafiosi*, were pledged to carry out ruthlessly the orders given to them and were responsible for a great number of outrages. They were most formidable about the middle of the century and attempts to suppress them failed. After 1925, however, the Fascist authorities took the task in hand and were more successful.

Magadi Lake of British East Africa. It is 189 m. and is famed for its vast deposits of soda. The lake is 30 m. long and covers about 250 sq. m.

Magazine Building or chamber in a fort or on board a warship for the safe storage of ammunition and explosives in bulk. The magazine either forms a chamber in the body of the slope or parapet, or a separate fireproof and well drained building against the inner side of the slope. The magazine on a warship is placed well below the water line. The cartridge holder in a modern rifle is called a magazine.

Magazine Name used for a periodical publication. In 1731 *The Gentleman's Magazine* was first issued and later every large publishing house had its magazine. Of these only *Blackwood's* and the *Cornhill* remain.

Magdala Town of Abyssinia. It is 250 m. from Jibuti on the Gulf of Aden and stands at a height of 9000 ft., on a fortified hill. Here, in 1860, some British subjects and others were imprisoned. To release them a force was sent out and the fortress was captured and destroyed, April 13, 1868. The leader of the force, Sir Robert

Napier, was made Baron Napier of Magdala. Afterwards the fortifications were rebuilt.

Magdalena River of Colombia, South America. It rises in the mountains in the south-west of the country and flows across it to the Caribbean Sea. Its length is about 1000 m. and it is navigable for the greater part of that course. A department of Colombia is named after the river. **Magdalena Bay** is an opening of the Pacific Ocean on the coast of Mexico. It forms one of the finest natural harbours in the world.

Magdalen College College of the University of Oxford. It was founded in 1458 by William of Waynflete and has a fine pile of buildings in the High Street. Its tower is a landmark and its chapel is noted for its choir. The grounds are extensive and include a deer park. The hall is worthy of mention, as are the cloisters. The head is the president and the scholars are called demis. The college includes Magdalen Hall. Notable members include Addison and the Prince of Wales.

Magdalene College at Cambridge dates from 1542. The buildings are in Magdalen Street, and the head is the master. The college is famous for its connection with Popsy: the manuscript of his *Diary* belongs to it.

Magdalenian Uppermost stage of the palaeolithic period in Europe. Named from La Madeleine rock-shelter near Les Eyzies, Dordogne, where many engraved bone and horn implements were found, it exhibits man in association with the reindeer under subarctic conditions, and developing prehistoric art to its highest. It extended from south Britain to Russia.

Magdeburg City of Germany. Capital of the Prussian province of Saxony, it is on the left bank of the river Elbe. It flourished during the Middle Ages, and after belonging to France in 1806, became Prussian again in 1814. It is the central market in Germany for sugar and oilseeds, and exchanges also groceries, horses, wool, coal, cereals and books. It has a broadcasting station (283 M., 0.5 kW.). Pop. (1925) 297,151.

Magee William Connor. British prelate. Born in Cork, Dec. 17, 1821, he was the son and the grandson of clergymen, his grandfather being Rev. W. Magee, Archbishop of Dublin, 1822-31. He was educated at Kilkenny and at Trinity College, Dublin, but began his ecclesiastical career in England, becoming an incumbent at Bath in 1848 and moving later to London. In 1860 he was made Vicar of Emskillen, in 1864, Dean of Cork and in 1866 Dean of the Chapel Royal, Dublin. In 1868 he was appointed Bishop of Peterborough, where he was, until chosen Archbishop of York just before his death, May 5, 1891. Magee was a great orator and was regarded as one of the finest speakers in the House of Lords.

Magellan Ferdinand. Anglified name of the Portuguese sailor, Fernao de Magalhaes. Of good family, he was born about 1470 and lived for a time at court. In 1504 he went to India. He served as a soldier in Morocco. In 1517 he took service with the King of Spain and in 1520 discovered the strait which was named after him. He was the first European to enter the Pacific Ocean, which owes its name to him. He was killed in a fight on one of the Philippine Islands, April 27, 1521. Magellan's

ships were the first to complete a voyage round the world.

Magellan Straits of. Arm of the sea, linking the Atlantic and Pacific Oceans. At the extremity of South America, it is between Chile and Tierra del Fuego and is 360 m. long.

Magersfontein Spot near the Modder River in the Orange Free State. On Dec. 10, 1899, a British force, advancing under Lord Methuen to relieve Kimberley, was met by a Boer army entrenched among the hills. The British moved forward to the attack, but the Highland Brigade was beaten back with heavy loss and other attempts failed.

Maggiore Lake of Italy and Switzerland. Famous for its beauty it is 40 miles long, and covers over 80 sq. miles. In the lake are the Borromean Islands. The northern or Swiss part of the lake is called Locarno. The Ticino and other rivers flow into the lake.

Maggot Popular name applied in larva, especially when pale hued and legless. It often denotes the larva of the blow fly and others found in decaying animal and vegetable matter, e.g., the rat-tailed maggots of drone flies, or destructive pests such as those infesting cheese, beet-leaf, seed-corn and plant-galls. See HOUSE FLY.

Magi At first a priestly Persian caste of exorcists and soothsayers. Later they expounded Zoroastrianism, the state religion under the Sassanids from A.D. 227-651 and finally degenerated into magicians. The name is used for the three men who offered gifts to the infant Jesus (Matt. ii.).

Magic Practice of attempting or claiming to control events by non-natural processes. The word, associated with the ancient Persian magi, extends to a wide range of practices observable in the lower levels of culture. It is distinguishable from religion, which involves submission to a higher power, by its use of the assumed power of the spell, especially over supernatural beings. Magical powers, exercised by act or word, may be altruistic in intention and socially respectable, as with professional rain-makers. When turned to private ends they tend to become antisocial and illicit. White magic is associated with beneficial spirits, black magic with baleful ones. See CONJURING.

Magic Lantern Popular name for the optical lantern used for projecting pictures upon a screen. It has a box-like body made of wood or metal, and in the simpler kinds an oil lamp is used, but in the more effective lanterns greater illuminating power is obtained by the use of limelight or an electric arc. The body is fitted with lenses for projecting and focusing purposes.

Magistrate Official appointed to administer justice. In Great Britain magistrates are of two kinds—unpaid and paid. The unpaid magistrates are appointed for the counties and certain boroughs and collectively form the commission for the peace. They sit in the police courts and courts of quarter sessions. Oaths can be taken before them and they can sign warrants, but a single magistrate cannot hear a case. Certain officials, e.g., a mayor or the chairman of an urban district council, are magistrates because of their office. Paid or Stipendiary Magistrates

sit in the London police courts and in certain large towns, such as Birmingham. They can sit alone as they have the powers of two ordinary magistrates. They must be barristers of at least seven years' standing.

Magna Charta Charter of privileges signed by King John at Runnymede, near Staines, June 15, 1215. He was forced to sign it by the barons led by the Archbishop of Canterbury, Stephen Langton. It was a statement of the laws or customs of the land and was confirmed by Henry III. and Edward, but with some of its most important clauses left out.

Magnesia Name given to magnesium oxide. This is a white, bulky powder formed when magnesium is burned in air, or when the carbonate is calcined. It is used in medicine, and in making crucibles, cupels, and firebricks.

The carbonate, or a mixture of the carbonate and hydroxide, used in pharmacy, is termed *magnesia alba*.

Magnesite Mineral consisting of magnesium carbonate and occurring in massive fibrous or granular form. Its colour varies from white, greyish-white to brown, and it is associated usually with serpentine and allied rocks occurring in Silesia, Norway and North America. Magnesite is used in preparing Epson Salts, and in paint, paper, and firebrick manufacture.

Magnesium Metallic element having the symbol Mg, atomic weight, 24.32, and melting point 651°C. Its compounds, chiefly the carbonate, are distributed widely as magnesium limestone, dolomite and magnesite. It is extracted chiefly by electrolysis of the fused chlorides from the mineral carnallite in Prussian Saxony. Magnesium is a white metal burning with a dazzling white light when heated to redness in air. In ribbon, wire or powder it is used in photography and pyrotechny, and with aluminium forms a valuable alloy, magnallium.

Magnet Substance having the property of attracting iron, and in a lesser degree, nickel and certain other metals. This attractive property was observed first in the lodestone or magnetite, an oxide of iron.

A permanent magnet is a straight or horseshoe shaped steel bar magnetised by contact with a similar magnet or an electro magnet, the latter consisting of a soft iron bar surrounded by insulated wire coils and then temporarily magnetised by an electric current.

Electro-magnets, which can lift many times their own weight, are widely used in industry, particularly for handling such materials as scrap-iron. Their lifting power is determined by the number of ampere turns, the strength of the current employed, multiplied by the number of turns in the coils.

Magnetic Poles Areas on the earth's surface to which the mariner's compass points. They do not coincide with the geographical poles, north being found about 97° W. 70½° N., south estimated about 155° 16' E., 17° 25' S. They are subject to regular seasonal variations and to sudden irregular "magnetic storms."

Magnetism Form of energy exhibited in iron and a few other metals. The study of magnetic forces constitutes the science of magnetism. It invariably has a directive character. A bar magnet freely suspended and rotating about a

vertical axis, tends to come to rest in a definite position, that is, approximately north and south. It is found also that the north poles of two magnets repel each other, and the same is true of the south poles. When iron filings are sprinkled upon the poles of a horseshoe magnet they become magnetised and arrange themselves in curved "lines of force."

The earth has the properties of a magnet, with poles lying near the ends of its rotational axis. Lines of force are not regular on the surface, the necessary corrections to compass observations are taken from charts issued for practically all parts of the world.

Magnetite Black mineral with metallic lustre. It consists of the magnetic oxide of iron, containing, when pure, about 72.5 per cent. of iron. It occurs in veins and beds in schists and other metamorphic rocks, also in the form of magnetic iron sands. Magnetite, the lodestone of the ancients, is a natural magnet.

Magneto Machine or generator for converting mechanical energy into electrical energy by the rotation of an armature in the magnetic field of a horseshoe magnet. Magnetos are used for the production of an electric spark for ignition purposes in internal combustion engines.

A magneto consists essentially of two coils of wire, primary and secondary, wound upon a core of soft iron, and rotated between the poles of a magnet. The current in the primary coil is regularly interrupted by the action of a contact breaker, inducing in the secondary coil a current which passes across the electrodes of the sparking plug producing a spark.

Magnificat Opening word of the Latin canticle, translated as: *My Soul Doth Magnify the Lord* in the Book of Common Prayer. It is taken from S. Luke's Gospel (l. 46-55) and has been used since the 6th century in Christian churches.

Magnolia Genus of hardy and half-hardy trees and shrubs related to the tulip tree. They are indigenous to subtropical Asia and N. America, bearing large, fragrant, solitary flowers. The earliest to reach Britain was the American evergreen shrub *M. glauca*, introduced in 1688. During the 18th century several others came from both east and west, including the handsome American bull bay, *M. grandiflora*, 70 ft. high, from whose seeds the free-flowering Exmouth variety was established, and the Chinese yulan, *M. conspicua*, of which there is a purple-tinted, double-flowered variety.

Magpie Genus of perching birds of the crow family (pick). Stout beaked, lustrous-black, relieved by white on wings and breast, the common *P. pica*, 18 in. long, is wary when wild, and a sad thief when domesticated. Massively-built nests protect the 6-7 spotted and blotched bluish-white eggs.

Magyar Dominant people of the Hungarian republic. Descended from Altaian nomadic horsemen of Turkic stock who took Ugrian wives and adopted their language, they came westward into the Hungarian plains in the 9th century, assimilated other ethnic elements, entered the Roman Catholic communion in the 11th century, and have preserved their identity against Teutonic and Slavic pressure through their national language and tradition. After the changes of 1919 the republic's population became almost entirely Magyar. See HUNGARY.

Mahabharata Hindu sacred book, first printed in Calcutta, 1834-39, this ancient Indian epic is probably the longest in the world, and is the work of many hands, Vyasa, its supposed author, being undoubtedly a generic name. Its main story describes the conflict between Kurus, spirit of evil, and Pandus, spirit of good.

Mahaffy Sir John Pentland, Irish scholar. Born Feb. 26, 1839, the son of a clergyman, he went to Trinity College, Dublin. He was made a fellow and from 1869 to 1900 was Professor of Ancient History there. In 1914 he was chosen provost, a post he held until his death, April 30, 1919. He had been in holy orders since 1864 and in 1918 he was knighted.

Mahaffy was known as "the General" because of his knowledge of many subjects. He was an accomplished musician, a good cricketer and a fine shot, as well as a scholar of unusual attainments. He wrote several books on ancient history including *Greek Life and Thought* and *The Empire of the Ptolemies*, and his public positions included the presidency of the Royal Irish Academy.

Mahan Alfred Thayer, American historian. He was born Sept. 27, 1840, his father being a professor at West Point Military Academy. In 1886 he was chosen President of the Naval War College and he retired from the service in 1896. He died Dec. 1, 1914.

Mahan is known for his books on sea power, which attracted world attention. These are, *The Influence of Sea Power on History* (1860-1873), which appeared in 1900, and *The Influence of Sea Power upon the French Revolution and Empire*, 1892. He also published a biography, *Nelson, the Embodiment of the Sea Power of Great Britain*, 1891, and a volume of lectures called *Naval Strategy*, 1911.

Mahatma Sanskrit word, "great-souled," applied by modern Western theosophists to men said to be endowed with preternatural powers acquired by ascetic or astral means. The word became associated by the Indian populace with the Hindu nationalist leader, Mohandas Gandhi (q.v.), because of his asceticism.

Mahdi Name for the messiah expected by the Mohammedans. His coming was first preached in the 10th century and several men since have claimed to be the Mahdi. The best known was Mohamed Ahmed, who was born in the Sudan in 1848. He set out to conquer the Sudan and met with a certain amount of success. He died in 1885 and in 1898 his tomb near Khartoum was destroyed by British troops.

Mah Jongg Chinese gambling game. It is played with 136 counters or tiles, not unlike dominoes. Four players usually take part, but it can be played by two. The tiles are divided into three suits and there are four sets of each. Each player plays for himself and tries to secure the tiles representing the highest score.

Mahogany Compact timber, distinguished as Spanish or Cuban. It is derived from a Central American and W. Indian tree (*Swietenia mahagoni*). Reaching Britain early in the 18th century it acquired favour for domestic furniture; although less esteemed since Victorian times it is still used for cabinet work and aeroplane propellers. Honduras and Mexican mahogany

come from an allied species: both grow also in India.

Mahomet Founder of Mohammedanism. An Arab, he was born in Mecca about 570, a posthumous child, and soon lost his mother. He lived with an uncle and was employed in looking after camels and sheep, varying this occupation with one or two trading journeys. He is believed to have been epileptic. In 595 he married a wealthy widow and became rich and prosperous.

In 610 Mahomet began to regard himself as chosen by God to preach a new faith. He lived in a cave where he had visions and where, he believed, the angel Gabriel visited him. He denounced idolatry and declared there was only one God, Allah, and that Mahomet was his prophet. His few followers were persecuted, his wife died and he himself, in 622, was obliged to leave the city. He went to Medina, where the new faith was soon firmly established and the movement became a crusade. Mahomet raised an army and soon proved himself a conqueror. He entered Mecca as a victor in 630 and before he died in 632 had subdued all Arabia. He died in Medina, where he was buried. Although married to several wives, including Ayesha, he left no son. His sayings were collected together to form the Koran which contains the creed of his millions of followers.

Mahommedanism Religion founded by Mahomet. Its adherents are sometimes known as Moslems, or collectively as Islam. When Mahomet died in 632 his faith had a considerable hold on the inhabitants of Arabia and Asia Minor. His successor as caliph was Abu Bekr, who carried on his policy of converting the unbelievers by force. In 654 Mahomet's son-in-law, Ali, became caliph, and the adherents were divided into two great branches, Sunnites and Shites. The latter believed in the right of Ali to succeed, but the Sunnites did not.

During its first two centuries, or thereabouts, Mahommedanism made great progress. It spread into Africa and Europe, where in Spain it has left a great mark. In the 11th and 12th centuries, Asia Minor being almost completely Mahommedan, the faith spread over India. It was accepted by the Turks and inspired them to the conquests which were such a menace to Europe in the 15th, 16th and 17th centuries. In the 18th century they lost ground and at the end of the Great War, Turkey almost ceased to be a European power.

The faith of the Mohammedans is contained in the sentence coined by Mahomet, "There is no God but Allah, and Mahomet is his prophet." Its creed, which in some points is interpreted differently by its two great sects, is contained in the Koran. It enjoins prayer with the face turned to Mecca five times a day, fasting from sunrise to sunset during the month of Ramadan, and a pilgrimage once during a lifetime to Mecca. It places women in a very inferior place compared with men. Its worship is held in mosques which are found in all its cities, some of them being buildings of great splendour.

Its adherents number over 200,000,000, of whom 160,000,000 are in Asia. India contains a large Mahommedan element.

Mahratta See MARATHA.

Maiden Castle Earthwork just outside Dorchester.

Dorset. It was formed in the neolithic age and covers 160 acres, being perhaps the largest of its kind in the country. The hill is 430 ft. high and is protected by concentric ramparts of earth.

Maidenhair Fern (*Adiantum*) Large genus of ferns of the polypody tribe, natives of temperate and tropical regions. The common *A. capillus-veneris*, whose fronds have spreading hair-like branches, occasionally occurs wild in the west of England, Wales and Ireland. There are several hothouse and greenhouse favourites, mostly preferring damp and shade; some furnish a sweet syrup called capillaire.

Maidenhair Tree (*Ginkgo biloba*). Tall gymnospermous tree, the single species of its genus. It is a native of China and Japan, and has beautiful fan-shaped foliage. The golden plumlike fruit borne on the female tree is edible, the male tree bears a catkin-like spike for fertilisation.

Maidenhead Market town and urban district of Berkshire. On the Thames, it is 24 m. from London, on the G.W. Ry. The industries include brewing. Pop. (1931) 17,520.

Maid of Orleans See JOAN OF ARC.

Maidstone County town, borough and market town of Kent. It is on the Medway, 41 m. from London, on the S. Ry., and the centre of several road services. Here is the former palace of the Archbishops of Canterbury. The industries include the making of agricultural implements, paper, cement and toffee and there is a trade in hops and farm produce. It is also a military centre. Pop. (1931) 42,259.

Main River of Germany. It rises in the mountains in the east of the country and flows for some 300 m. to Mainz where it joins the Rhine. On it are Frankfurt, Nuremberg, Würzburg and other places and most of its course is navigable. The Saale and the Regnitz are tributaries and a canal unites it with the Danube.

A small river of Co. Antrim, Northern Ireland, is called the Main. It is 30 m. long and flows into Lough Neagh.

Maine Province of France before the Revolution. It lay to the south of Normandy, around the town of Le Mans, which was its capital. It had its own counts for a time, but about 1100 became part of the territory ruled by the counts of Anjou, one of whom was Henry II. of England. In 1204 it was taken from King John by the King of France and was ruled by counts who were members of the royal family. At the Revolution it was divided into the departments of Sarthe and Mayenne.

Maine State of the United States. In the N.E. of the country, its northern boundary is formed by New Brunswick and it has a long coastline on the Atlantic Ocean. Its land area is 29,800 sq. m. and its interests are chiefly agricultural. The state capital is Augusta, but Portland is the largest place. Other towns are Lewiston and Bangor. Pop. (1930) 797,423.

Maine Sir Henry James Sumner. British historian. Born Aug. 15, 1822, he was educated at Christ's Hospital and Cambridge. He was senior classic at Cambridge in 1844 and in 1847 was made regius professor of civil law there. In 1852 he was appointed

reader in jurisprudence at the Inns of court and in 1862 he went to India as legal member of the viceroy's council. In 1869, on his return to England, he was made professor of comparative jurisprudence at Oxford and in 1877 master of Trinity Hall, Cambridge. In 1871 he was knighted, and was Whewell professor of international law at Cambridge from 1887 until his death at Cannes, Feb. 3, 1888.

Maine wrote books which had a great influence on the study of jurisprudence and are still valuable. The most important is *Antient Law*; hardly less so are *The Early History of Institutions* and *Early Law and Custom*.

Maintenance Word used in English law. A maintenance order is one which a wife can obtain from a magistrate if her husband fails to support her. The amount varies according to the husband's income, but will not exceed £2 a week, with an additional 10s. a week for each child under 16. A maintenance order differs from a separation order. See ALIMONY; SEPARATION.

Maintenon Madame de. Wife of Louis XIV. of France. Françoise d'Aubigné was born Nov. 27, 1635, her parents being then in prison as Huguenots. She lived in Martinique for a few years, but in 1645 returned to France, and in 1651 she was married to the poet Scarron. He died in 1660 and his widow, forced to earn a living, became governess to the children of Louis XIV. and Madame de Montespan. Her wit and beauty attracted the attention of Louis and she became king's mistress about 1678, when she was made a marquise. She retained her position until Louis died in 1715, being for the last 30 years of that time his wife, and exercised a remarkable influence over him. Her last years were passed at St. Cyr, where she died April 15, 1719, leaving behind her a reputation for piety.

Mainz City and river port of Hesse-Darmstadt, Germany. It stands on the Rhine, where that river is joined by the Main, 22 m. from Frankfurt. There is a trade along the river, and Mainz is a railway junction and has a number of manufactures. The wine trade is important. The cathedral is one of the finest in Germany. The French spelling of the name is Mayence. Pop. 110,000.

In the Middle Ages Mainz was the seat of a bishop and then of an archbishop. He became the primate of Germany and an elector and ruled over an extensive district around the city. The office was abolished in 1803 and the city itself then became part of Hesse.

Maisonneuve City of Quebec, Canada. A manufacturing centre, it is on the island of Montreal, and adjoins the city of that name. Maisonneuve is named after Paul de Chomedey, Sieur de Maisonneuve, a French officer who, in 1642, founded the city of Montreal. He was the governor until 1665 and died in 1676.

Maitland Town of New South Wales. It is on both banks of the Hunter River, 120 m. north of Sydney. East Maitland is an important railway junction and an agricultural and colliery centre. At West Maitland are pottery and brick works. Pop. (1926) 12,960.

Maitland Frederic William. English historian. Born May 28, 1850, he was educated at Eton and Trinity College, Cambridge. In 1884 he was made reader in English law at Cambridge and in 1888 Downing professor of laws. He died Dec. 19, 1906.

Maitland's researches into the early history of our laws and institutions marked him out as a scholar of unusual power. His chief works are, *The History of English Law*, written with Sir F. Pollock and the suggestive volume, *Domesday Book and Beyond*. He wrote *Township and Borough* and *Canon Law in England*, and was one of the founders of the Selden Society.

Maiwand Village of Afghanistan. It is 30 m. from Kandahar. Here, on July 27, 1880, a British force was attacked by an army of Afghans who routed the native troops. The retreat was covered by a battalion of the Berkshire Regiment which lost 300 officers and men.

Maize Stout, annual grass. Next in importance to rice as a cereal food, it is probably indigenous to tropical America. Besides enormous crops in the United States, it is raised in Canada, Mexico, Argentina and Brazil, and is naturalised in S. Africa, India, China, S. Europe and Australia. The grain is roasted or boiled; coarsely milled it becomes hominy or polenta, deprived of gluten it yields cornflour. It is also a valuable cattle food, and the leaves furnish green fodder.

The world's production of maize in 1931 was 500,000,000 quarters and is only slightly less than that of wheat.

Majolica Name properly restricted to tin-enamelled pottery of the Italian Renaissance. On its decorative designs were painted and fired. First developed by Luca della Robbia, it reached its zenith when associated with metallic lustre, in emulation of that displayed on Hispano-Moorish ware, which reached 15th century Italy in Majolica ships; hence the name. Supreme examples were produced at Pesaro, Faenza, (Castel Durante, Urbino, Gubbio and other famous 15th-17th century pottery centres. (Over modern imitations abound.

Major Rank in the British army. It is below that of lieutenant colonel and above that of captain. A major wears a crown as the badge of his rank. In the infantry a major is usually the second in command of a battalion and commands a company.

Major Name meaning greater applied in music to seconds, thirds, sixths and sevenths. A major semitone is a diatonic semitone and a major triad consists of a note with its major 3rd and perfect 5th above it. A diatonic scale progressing by tones but with 3rd and 4th and 7th and 8th degrees only a semitone apart, is said to be in major mode. The major tone in acoustics is that in the ratio 9:8 and the organ stop major bass is a 16 ft. diapason stop.

Majorca Island in the Mediterranean Sea. It is one of the Balearic Islands and belongs to Spain. It is 115 m. from Barcelona and covers 1325 sq. m. The interior is mountainous, but the soil is generally fertile and much fruit is grown including oranges and figs. Wine, glazed pottery, coal and stone are produced. Palma is the capital and there are many small places and good harbours around the coast. There are many wonderful stalactite caves. See BALEARIC ISLANDS.

Major-General Rank in the British army. It is above that of colonel and below that of lieutenant-general. The badge is a sword and baton crossed with a star above. A major-general's usual command is a division.

Majuba Hill north-eastern end of the Drakenberg Mountains, it is 7000 ft. high. On Feb. 27, 1881, a small British force under Sir G. Colley seized the hill. Early next morning the British were attacked by the Boers and defeated, Colley being killed.

Malabar District of India. It is in Madras and covers about 6000 sq. m. Calicut is the chief town. The Malabar coast is a strip of land about 40 m. wide between the hills and the sea.

Malacca Largest of the Straits Settlements. Occupying about 720 sq. m. in the Malay Peninsula, it extends for 42 m. along the Malacca Strait opposite Sumatra, the capital of the same name being 118 m. N.W. of Singapore. Captured by Portuguese in 1511, it became Dutch in 1641, and British in 1795. It was finally exchanged for Britain's Sumatra settlement in 1824. Pop. 205,820.

Malachi Name assigned to the last book of the Old Testament in the English Bible. Meaning "my messenger," it may be the personal name of a prophet otherwise unknown, or the title of a prophet whose proper name is unrecorded. Written after the rebuilding of the Temple, 6th century B.C., the book rebukes priestly degeneracy and various social evils.

Malachite Green mineral composed of the basic carbonate of copper. It is rarely crystallised but occurs in compact or nodular masses often of great size in the Ural Mts., Australia, France and the British Isles. When cut and polished it is used for decorative purposes or as a gemstone. It is also the basis of a pigment, malachite green.

Malacology Branch of zoology devoted to the study of the anatomy of animals of the molluscan type. It is distinguished from conchology which is concerned with the study and classification of molluscs based primarily upon the characters of the shells.

Malaga City and seaport of Spain. Situated 65 m. N.E. of Gibraltar, it comprises a complex of old buildings commanded by a 13th century Moorish castle, with well-built modern suburbs. The climate is mild and equable; wine is produced and there is much shipping activity. Founded by Phoenician merchants, it passed into Roman, Visigothic and Moorish hands, becoming Christian in 1487. Pop. 158,750.

Malakand Pass on the Indian frontier, also the name of a frontier post. The pass is in the North-West Frontier province and extends from the valley of the Kabul to that of the Swat River. Dargal is at the mouth of the pass. In 1897 there was trouble with the Swats here and the force sent against them was called the Malakand field force. See DARGAL.

Malar Lake of Sweden. Just outside Stockholm, it covers 650 sq. m. and its waters are carried to the Baltic. There are over 1000 islands on the lake, which is the centre of magnificent scenery.

Malaria Italian term, "bad air," for a group of fevers. Formerly called ague, they are intermittent fevers and are caused by minute animal parasites (*plasmodium*). Malaria is found to be transmitted from infected persons by the sunset bite

of the bloodsucking females of certain mosquitoes (*Anopheles*). The parasites, after a life-cycle in the female mosquito, pass through her salivary glands when biting, undergo a second life-cycle in man, and then attack his red blood-corpuscles. The specific remedy is quinine. See BLACKWATER FEVER.

Malay People of Mongoloid stock dominant in the Malay Peninsula and Archipelago. The true Malays are shortish, round-headed, straight-haired, olive-brown race, with small hands and prominent cheekbones, of an easygoing, impassive temperament. First arriving in Sumatra and Malacca, they became Islamised in the 13th-16th centuries, developed seafaring practices, and underwent ethnic admixture with their Indian and Melanesian neighbours. Their language, the *lingua franca* of the East Indies, has widespread affinities, traceable from Easter Island to Madagascar.

Malaya Political term for the greater part of the Malay Peninsula, south of the Siamese boundary and constituting the British sphere, it embodies the Straits Settlements, Federated Malay States and Non-Federated Malay States, including the Johore Protectorate and four native states which passed from Siamese to British suzerainty in 1909. Occupying 51,605 sq. m., it has an estimated population of 4,000,000 including Malay tillers of the soil, primitive jungle-dwellers, and Chinese and Tamil immigrants.

Malay Archipelago World's largest group of islands, variously called also the East Indies, Indonesia and Malaysia. Common usage includes the Sunda Islands, Celebes, the Moluccas, Borneo, New Guinea, the Philippines, and Netherlands India.

Malay Peninsula Strip of land forming the southernmost extremity of Asia. Connected with the rest of Farther India by the Kra Isthmus, and projecting southward between the China Sea and the Malacca Strait, it extends for 750 m. to Cape Romanis, the extreme point being sheltered by the island of Singapore, which has railway connection with Bangkok. The area is 70,000 sq. m., traversed by a mountain ridge with peaks up to 8000 ft., densely forested, and fringed here and there with coastal swamps.

Malcolm Name of four kings of the Scots. Malcolm I. was king from 943 to 954, and Malcolm II. from 1005 to 1034. Malcolm III., son of Duncan, killed Macbeth in battle and was made king in 1057. He was killed at Malcolm's Cross near Alnwick in Nov., 1093. He married Margaret, an English princess, and was known as Canmore, or big head. Malcolm IV. succeeded his grandfather, David I., in 1153. He reigned until his death, Dec. 9, 1165. All four Malcolms ruled over the southern part of Scotland only, and held part of their land as vassals of the English kings.

Malden District of Surrey. It is 3 m. from Kingston-on-Thames, and 10 from London, on the S. Ry. To the north is New Malden, a residential district, and the two are part of the urban district of the Maldens and Coombe. Pop. (1931) 23,412.

Maldive Islands in the Indian Ocean. They belong to Great Britain and are controlled from Ceylon, but have their own sultan and government. Of coral formation they are 800 m. to the south-west of Ceylon.

Malé, or King's, is the largest island and there are 12 others. Copra, millet, fruit and nuts are grown, and many of the inhabitants are fishermen. Pop. 70,000.

Maldon Borough, seaport and market town of Essex. It stands at the head of the Blackwater estuary, on the L.N.E. Ry. The industries include shipping, engineering works, brewing and milling. Pop. (1931) 6559.

Malesherbes Chrétien Guillaume de Lamoignon de. French politician. Born in Paris, Dec. 8, 1721, he became a lawyer and notable censor of legal abuses. After his retirement in 1771 he undertook to defend Louis XVI., was arrested, and sent to the guillotine, April 22, 1794.

Malherbe François de. French poet. Born at Caen in 1555, he was a protégé of Cardinal Du Perron, and became a favourite at the court of Henry IV. He wrote odes, songs, epistles, translations, and criticisms, and had a vigorous, if somewhat cold, style. He started a reaction against the artificialities of Ronsard and the Pléiade. He died in Paris, Oct. 16, 1628.

Malines Alternative name for the Belgian city of Mechlin (*q.v.*).

Malingering Feigning illness or incapacity to work in order to secure a benefit. Cases occur under the national scheme for sickness benefit and in connection with workmen's compensation. Most cases are easily detected by experienced medical men.

Mall The Thoroughfare in London. It runs from the Admiralty Arch near Trafalgar Square to the Victoria Memorial before Buckingham Palace. It is overlooked by the gardens of St. James's Palace and the adjacent houses. The name, like that of the parallel Pall Mall, is taken from the game of pell-mell which was played here in the 17th century.

Mallard Common wild duck of Great Britain and the northern hemisphere (*Anas platyrhynchos*). The name properly denotes the drake only, 24 in. long, with glossy-green head and neck, white-ringed, purplish breast and greyish-white underparts. The wild drake, unlike the domesticated forms, is content with one mate, which lays 8 to 12 greenish-white eggs in down-lined grass nests. See DUCK.

Malleability Capability of certain plastic metals of being constrained into new forms by mechanical methods, such as hammering or rolling, without fracture. The most malleable metal is pure gold. See CASTING.

Malling Two villages of Kent. West Malling, or Town Malling, is 5 m. from Maidstone and 36 from London, on the S. Ry., and East Malling is about 2 m. away. A fruit-packing station has been opened at the former place.

Mallow Genus of herbs, natives of the northern hemisphere (*Malva*). The common blue-flowered mallow, the lilac-flowered dwarf, or round-leaved, and the rose-flowered musk-mallow grow wild in Britain; the last is returning to favour with gardeners. They, however, commonly designate mallows varieties of the hardy annual tree-mallow (*Lavatera*) with rose or white blooms. See MARSH MALLOW.

Mallow Urban district, market town and watering place of Co. Cork.

MALM

Irish Free State. It is on the Blackwater, 21 m. from Cork, and is a junction on the G.S. Rly. It is an agricultural centre and has a mineral spring. Pop. 4562.

Malm Geological term for one of the three divisions into which the Jurassic System is divided in Germany. An alternative name is White Jurassic, and it corresponds to the Upper and Middle Oolite in England.

Malm stone is an old name given to a calcareous sandstone occurring in West Surrey, Hampshire and Sussex.

Malmédy Town and district of Belgium. The town stands on a little river, and is 25 m. from Aix-la-Chapelle. Pop. 5000.

The district covers 318 sq. m. From 1815 to 1918 it was part of Germany. In 1920 the people, by a plebiscite, decided to become part of Belgium.

Malmesbury Borough and market town of Wiltshire. It is on the Avon, 94 m. from London, on the G.W. Rly. To-day an agricultural and brewing centre, Malmesbury was once a centre of cloth manufacture. Its abbey church has a beautiful Norman porch. Pop. (1931) 2334.

Malmesbury Earl of. English title borne by the family of Harris. James Harris was born at Salisbury, April 21, 1746, and was educated at Winchester and Oxford. He had a long career in the diplomatic service, and in 1788 was made a baron. In 1800 he was made an earl, and he died Nov. 21, 1820. His *Diaries and Correspondence*, also his *Letters*, are valuable to historians.

James Edward, the 2nd earl, was succeeded by James Howard as 3rd earl. He was born March 25, 1807, and became earl in 1841. In 1852 and 1858-59 he was Foreign Secretary, and he was Lord Privy Seal, 1866-68 and 1874-76. He died May 17, 1889, when his titles passed to a nephew. The family seat is Horon Court near Bournemouth, and the earl's eldest son is called Viscount Fitzharris.

Malmö Seaport of Sweden. It is on the Sound, beyond which is Copenhagen, 16 m. away. There is a good harbour and the place is well served by railways. Apart from shipping, for which there is ample accommodation, the industries are connected with the production of tobacco, sugar and other commodities. It has a broadcasting station (231 M., 1.25 kW.). Pop. 117,100.

Malmsey Sweet high-flavoured wine produced from grapes grown in the Middle Ages in the Aegean, and exported from Monemvasia in the Morea. The French name, *Malvoisie*, is also used. Its modern representative, produced at Santorini, mostly goes to Russia. White wines of Malmsey type come from Cyprus, Sicily, Sardinia, the Canaries, Madeira and the Azores.

Malory Sir Thomas. English writer. He appears to have come from Warwicksire to London, to have been a politician and a soldier, to have died in 1471, and to have been buried in the Grey Friars near Newgate. His *Morte d'Arthur* is one of the treasures of English literature. He evidently collected from various old writers the legends about Arthur and his knights and arranged them in an orderly way. The book was finished in 1469 and was first printed, by Caxton, in 1485.

845

MALTA FEVER

Malpas Town of Cheshire. It is 13 m. from Chester, on the L.M.S. Rly. Pop. 1100.

Another Malpas is a village in Cornwall. It is on the Fal, 2 m. from Truro.

Malplaquet Village of France. It is 10 m. from Mons and is famous for the battle fought here Sept. 11, 1709, between British and Austrian armies under Marlborough and Prince Eugene and a French army under Villars. The French were utterly routed, but the allies were too weak to pursue them. About 90,000 men were engaged on each side; the British and their allies lost 20,000 men and the French 12,000.

Malt Partially germinated grain of various cereals, chiefly barley. The process by which it is prepared is termed malting. In Britain barley is used generally in brewing, spirit and vinegar manufactures, but in Germany and other countries wheat, rice and other cereals also are used. The barley is steeped first in water, then the soaked grain is spread on a floor or in revolving drums and allowed to germinate up to a certain stage. During this process the ferment diastase is formed and converts the starch present into maltose (*q.v.*) and dextrin. The "green malt" is dried in a kiln and finally cured at a greater heat without free circulation of air until the mass becomes friable, brown in colour, and develops a distinctive flavour. A watery infusion of malt is known as "sweet wort," and a thick syrupy extract is used medicinally. See BREWING.

Malta Island of the Mediterranean Sea. It is about 55 m. from Sicily, is 17 m. long, and covers 92 sq. m. It is an important British naval base. Valetta, which succeeded Città Vecchia as the capital, is the chief harbour. The interior is hilly, but there are fertile valleys where oranges, figs, olives, grapes and other fruits grow freely. Horses, sheep and goats are reared and many mules come from Malta, which is also famous for its honey and lace. The fisheries are valuable. Malta was ruled in turn by the Phoenicians, Greeks, Carthaginians, Romans and Arabs. It was then attached to Sicily and to Aragon. It was part of the empire of Charles V. and that ruler gave it to the knights of S. John, who fortified it and ruled it until 1798, when it was seized by Napoleon. It was formally handed over to Great Britain in 1814.

In 1921 a constitution was given to Malta. This provided for a legislature of two houses, the members of the lower house being elected. Matters of imperial concern, such as defence, trade and coinage are under the control of the governor, who is assisted by two councils. English is the official language and British coins are the legal tender, but the islanders have their own tongue, a Semitic one, which is in general use. The island has an order of nobility consisting of 29 families, and there is a university.

In 1929 there was a serious dispute between the state, represented by Lord Strickland, and the Church of Rome, to which most of the people belong. The interference of the priests in secular matters led to a crisis, and after negotiations for a settlement had failed, the constitution was suspended on June 26, 1929. A royal commission visited the island to inquire into the matter in 1931 and in 1932 the constitution was restored and an election held. Pop. (including Gozo and Comino) 241,621.

Malta Fever Variety of fever found in the Mediterranean

countries; also in other parts of the world. It takes very much the same course as other fevers, but the illness lasts longer than in most of them, sometimes as long as six months. It is caused by a parasite which is conveyed by the milk of goats.

Maltese Terrier Breed of dog. It is an ancient form of lap-dog, traceable for 2000 years; the inaccurate name terrier is becoming obsolete. It resembles a toy Skye terrier, averaging 5 to 6 lb., dark-eyed, black-nosed, with long, white, silky coat and thickly-haired tail curling over the back. It is intelligent, affectionate and good-tempered.

Malthus Thomas Robert. English economist. He was born near Dorking on Feb. 17, 1766, and became curate of Albury, Surrey, in 1797. In 1798 he published anonymously his *Essay on the Principle of Population*, which set out to prove that increase of population was dependent upon the presence of warmth and food, and would only be checked by the lack of these things, or by such positive checks as disease, epidemics, wars and plagues. In 1805 he was appointed Professor of Political Economy in the East India College at Haileybury. He wrote *Principles of Political Economy* in 1820. He died near Bath on December 23, 1834.

Malton Urban district and market town of Yorkshire (N.E.). It is situated on the Derwent, 21 m. from York, on the L.N.E. Ry. The industries include brewing, milling and tanning. The town is a centre for the breeding and sale of horses and has racing stables. Pop. (1931) 4418.

Maltose Name given to malt sugar, a carbohydrate belonging to the group of disaccharoses containing twelve atoms of carbon. It is formed by the action of the ferment diastase, present in malt, upon starch of which 80 per cent. is converted into sugar. It undergoes fermentation by yeast, producing alcohol.

Malvern Inland watering place and urban district of Worcestershire. It consists of Great Malvern, Little Malvern, Malvern Link and other places on the Malvern Hills. Great Malvern is 128 m. from London, on the G.W. and L.M.S. Ryhs. The town has medicinal waters. Pop. (1931) 15,632.

Malvern Hills Range of hills in England. They are chiefly in Worcestershire and Herefordshire and the highest points are 1400 ft. high. The chief hills are Worcester, Hereford and Gloucester Beacon and they are best visited from Malvern. Some part of the region is national property and in 1930-31 steps were taken to protect them from disfigurement by quarrying. The district was once a hunting ground and was called Malvern Chase.

Mamelukes Body of slaves trained to arms. They were utilized by Saladin's successors in 13th century Egypt as a mounted bodyguard. Their leader made himself sultan, 1250; a Bahri and then Circassian dynasty of Mameluke sultans followed. The Turkish domination, 1517, enthroned a Turkish pasha, who ruled through 24 provincial Mameluke beys. Napoleon I. defeated the Mamelukes, 1798, but they retook the country, until Mohammed Ali, with French support, became pasha, treacherously assassinating the surviving beys and their followers in 1811.

Mametz Village of France, 5 m. from Albert. During the Great War it was captured by the British in the Battle of the Somme, July 1, 1916, but it was lost in March, 1918.

Mammal Highest division of the animal kingdom. Mammals are air-breathing and warm-blooded vertebrates, which, with the exception of the lowest group, the monotremes, are viviparous and suckle their young. The foetus undergoes a gestation period during which it is nourished by an organic connection between the foetal membranes and the uterine wall or placenta. The spinal column is characterized by having intervertebral discs between the centra, the skull possesses two condyles and articulates directly with the lower jaw. A hairy covering is usually present, and the brain differs from that of the lower vertebrates by having a band of transverse fibres, the *corpus callosum*.

Mammon Aramaic word for riches, used in the Sermon on the Mount (Matt. vi.), and the parable of the Unjust Steward (Luke xvi.). Personifying inordinate love of gain, mediaeval Europe gave the name to a demon, as figured in Milton's *Paradise Lost*.

Mammoth Extinct member of the elephant family. It was found in N. latitudes in glacial and preglacial times. In build it closely resembled the Indian elephant, but was provided with a thick, hairy coat over a woolly undercoat, and its long, slender tusks were curved upwards and outwards. Remains still retaining the flesh have been found in the icy gravels of Siberia, and its bones are present in many deposits as well as drawings by primitive man upon ivory fragments.

Mammoth Cave Large cavern in the limestone rock S. of Louisville, Kentucky. It has more than 150 m. of passages with subterranean lakes and streams. The chambers and passages present many different forms such as grottoes, domes, galleries and avenues, some having masses of stalactites and stalagmites, or a covering of calcite crystals. The chief chamber is 4 m. long, 125 ft. in height, and in places 300 ft. wide.

Man Genus of biped mammals of the order of primates (*Homo*). Biologically related to the other members of the order, the apes, monkeys and baboons, man presents peculiar differences of structure and aptitude, physical and mental. These include perfectly opposable thumbs on the hands, erect posture, gracefully curved spinal column, arms relatively shorter and legs relatively longer and stronger, progression on the soles of the feet, brain relatively larger and more complex than in any other animal, and capacity for articulate speech and education, whence came human civilisation. Man-like precursors, intermediate and incomplete, lived in earlier geological ages. Modern man is regarded as a single species, *Homo sapiens*. See ANTHROPOLOGY, ETHNOLOGY.

Man Island off the N.W. coast of Great Britain. It is 33 m. long and covers 221 sq. m. At the S. end is a small island called the Calf of Man. The island, a popular pleasure resort, lies about an equal distance from England, Scotland and Ireland (27 m.). Douglas is the capital; other places are Peel, Ramsey, Castletown, Port Erin and Laxey, connected by railway or electric tramways with Douglas and one another. The highest

point, Snaefell, is 2034 ft. high, and there are some beautiful glens. Oats and barley are grown, and dairy farming, lead mining and fishing are other industries.

The attractions of the island include a mild climate in which fuchsias grow freely in the open. In the summer steamers ply regularly to Douglas from Liverpool, Barrow, Glasgow and other ports.

Man is a part of the British Empire, but has its own constitution. This consists of a Council and a House of Keys, an elected body of 24 members. A Lieut-Governor represents the King. It has its own legal system, but its church, under the Bishop of Sodor and Man, is part of the Church of England. The island is divided into six shoenings, and its two judges are called deemsters. The coat of arms is three legs. The Manx language, a Celtic one, is still spoken by a few of the people. Manx cats are tailless.

The island was inhabited by Celts who became Christians in the 6th century. From the Kings of Norway it passed in 1263 to the Kings of Scotland. Edward I. secured it for England, and in 1406 Henry IV. gave it to Sir John Stanley. The Stanleys were Lords of Man until 1736, and their successors, the Dukes of Atholl, from 1736 to 1765, when the sovereign rights were acquired by the English Government. The rest of the Duke's rights were bought in 1827. Pop. (1931) 49,338.

Managua Capital of the republic of Nicaragua. Connected by rail with Granada, it stands on the S. side of the Lake of Managua, and has a university and an air station. There is a trade in coffee, sugar, bananas and other products, and some manufactures. The city was damaged by an earthquake in 1931. Pop. 33,000.

Manaos City and river port of Brazil. On the Rio Negro, a tributary of the Amazon, it has a university and is the capital of the state of Amazonas. There are large docks and steamer connection with Europe. Pop. 83,700.

Manasseh Elder son of the patriarch Joseph, but less important than Ephraim. His descendants were established N. of Ephraim in Samaria, and also in Gilad and Bashan, E. of Jordan. Another Manasseh was a king of Judah, 697-642 B.C. A son of Hezekiah, whose reforming policy he abandoned, his persistent idolatry contributed to Jerusalem's destruction and the Jewish exile.

Manatee Genus of aquatic mammals of the sea-cow order. They inhabit estuaries and rivers on the tropical Atlantic coasts of America and Africa. They are inoffensive, thick-skinned, 8 ft. long, with hand-like fore-paddles and no hind limbs, and feed on aquatic herbage. Amazonian natives eat the flesh.

Manche Name used by the French for the English Channel (q.v.). It is also the name of a department which has a coastline on the channel and includes the Cotentin Peninsula. St. Lo is the chief town and Cherbourg the chief port.

Manchester City of New Hampshire. The largest city in the state, it is 16 m. from Concord, on the River Merrimac. The chief industry is the manufacture of cotton. Pop. 78,384.

Manchester City of Lancashire, on the Irwell, 189 m. from London by the L.N.E. and L.M.S. Rlys. The city area covers 34 sq. m.

The Chetham Hospital is one of the few old buildings in the city. The Rylands Library, in a fine modern building, is a priceless collection of books and manuscripts. The cathedral, formerly the parish church, dates from the 15th century. The grammar school, nearly as old, occupies a fine new building at Fallowfield. The public parks include Heaton Park. In 1932 arrangements were made to build a new City Hall.

Manchester is the headquarters of the cotton manufacture in England and a great distributing centre. Other industries are engineering and chemical works, and the manufacture of clothing. The university grew out of Owens College, and the city is famous as a musical centre, with a Royal College of Music and the fine Hallé Orchestra. Its leading newspaper, the *Manchester Guardian*, is known throughout the civilised world. The city is governed by a lord mayor and council, and sends 10 members to Parliament. The sporting facilities include a racecourse and the ground of the Lancashire cricket club at Old Trafford. It has two famous association football clubs; Manchester United which won the cup in 1909, and Manchester City which won it in 1904. There is an aerodrome on Chat Moss. It has two broadcasting stations, North Regional (480 M., 50 kW.) and North National (301.5 M., 50 kW.). Pop. (1931) 766,333. See MANCHESTER SHIP CANAL.

Manchester Duke of. English title held by the family of Montagu. Sir Henry Montagu, a judge, was made Earl of Manchester in 1626. His son, the 2nd earl, was a Parliamentary leader in the Civil War. In 1719 Charles, the 4th earl, was made a duke. The family seats are Kimbolton Castle, Huntingdonshire, and Tanderagee Castle, Armagh. The earl's eldest son is called Viscount Mandeville. The title is taken from Godmanchester, near Huntingdon.

Manchester Ship Canal

Canal connecting Manchester with the estuary of the Mersey. The work was begun in 1887 and the canal opened for traffic in 1894. It cost about £20,000,000. It is 35½ m. long and goes from Trafford Park, Manchester, to Eastham on the Mersey. Well provided with docks and warehouses, it is 28 ft. in depth, and steamers of 12,500 tons can navigate it. It passes by Runcorn and Ellesmere Port.

Manchu People of Tungus stock in E. Asia. Tall, slender, medium-headed, level-eyed, they effected contact with early Caucasoid migrations, peopled Manchuria, and imposed a dynasty on China in A.D. 1644, which the Republican Revolution ended in 1912. Largely displaced in Manchuria by Chinese immigrants, their Altaic speech and script linger only in scattered groups.

Manchuria District of E. Asia, since 1932 an independent state. It is between the Amur, which divides it from the territory of the Soviet Republic, and China, to which it formerly belonged. Its 3 provinces cover 364,000 sq. m., and are served by the S. Manchuria and Chinese Eastern Rlys. The soil is very fertile and the population has increased greatly during the 20th century. The soya bean is the chief product, but wheat, barley and millet are grown. Mukden is the largest city and the old capital; but Changchun was made the capital of the new state in 1932. Other towns and ports are Newchwang, Antung, Dalren or Dalny, and Port Arthur.

The possession of Manchuria has often been a matter of dispute. Russia obtained a footing in the country, but in 1905 her rights therein were transferred to Japan. After the Great War there was a considerable amount of lawlessness in the province, in which Japanese troops remained. They were employed to crush the marauders, while from time to time came reports that the Soviet authorities were anxious to take some share in the affairs of the country. The control of the railway system was another cause of friction.

In 1932 the independence of Manchuria was proclaimed, and the former Emperor of China, Mr. Pu-Yi, as he was named, was installed in March, as ruler of the State of the Manchus. He was called the Administrator, and his office declared elective. The new government expressed its desire to meet the obligations which it formerly owed as part of the Republic of China. Just before this went the League of Nations had sent out a commission to investigate the circumstances of Japanese control. Pop. 25,000,000.

Mandaeans Eastern religious sect, resembling the Gnostic Christians of the second and third centuries. Their belief, derived from the New Testament, but containing Jewish and Parsic elements, reveres John the Baptist. They are therefore sometimes called Christians of Saint John, or Subia (Baptists) and identified by Mohammedans with the Sabaeans of the Koran. Very few now remain and those mostly in Mesopotamia.

Mandalay City and river port of Burma, on the Irrawadi, about 400 m. from Rangoon. The old city was burned down in 1892, but two of the palaces and the walls remain. It is now the British quarter, and is called Fort Dufferin. In the new city the finest building is the group of several hundred pagodas which compose the great temple named Kuthodaw. The city does a large trade in the products of the country. From 1837 to 1885 Mandalay was the capital of the kingdom of Burma. Pop. 138,000.

Mandamus In English law the name of a writ. The word in Latin means "we command." It is issued by the King's Bench division in cases where a public body, or occasionally a private person, fails to perform an obvious duty. For instance, if a borough failed to deal with an outbreak of infectious disease, some one could apply for a writ of mandamus.

Mandarin Name, derived by Portuguese navigators from Hindu, in general European use for any public official in China, civil or military, who wears a button. The native name is *kwän*. Nine grades are indicated by the material and colour of the button-knobs and girdle-clasps, and the devices embroidered on the robes.

Mandarin Duck Small freshwater duck indigenous to E. Asia (*Aix galericulata*). It is also called the Chinese teal. The drake has purple, green and chestnut plumage, with long, silky, erectile crest. One of the shoulder feathers expands into an upturned purple-banded chestnut fan. Mandarin ducks are the most gorgeous of the waterfowl in British ornamental waters.

Mandate Command or order. When a person is elected to Parliament, or some other body, on a particular question, he or his party is said to receive a mandate.

Since the Great War the word has been used for the authority given by the League of Nations to a country to administer the affairs of another country. Countries responsible for Mandated Territories, as they are called, receive their directions from the League, and reports about their work are issued from time to time. Great Britain governs Tanganyika and Palestine, and until 1931 governed Iraq, under mandate. France governs Syria, and British Dominions govern S.W. Africa and certain islands in the Pacific.

Mandeville Sir John. English author. He is regarded as the author of a book of travel written about 1360. The information is taken from earlier books and contains much legendary matter, as well as a certain amount of actual travel details. One theory is that the author was a certain John de Bourgoyn, but this may have been a name taken by Mandeville. Mandeville died at Liège, Nov. 17, 1372.

Mandoline Musical instrument of the lute family still popular in Italy. The Neapolitan mandoline has four pairs of metal strings tuned in fifths. It is played with a tortoiseshell plectrum, and 17 frets mark the stoppings. The larger Milanese mandoline has five or six pairs of strings tuned like the lute. Handel, Paisiello, Mozart and Beethoven composed for the mandoline occasionally.

Mandrake Genus of perennial herbs of the potato family, (*Mandragora*). They are stemless plants with thick, fleshy roots, whose forked growth simulates man's lower limbs. Fantastic superstitions have pertained to them since the days of Rachel (Gen. xxx.). Long credited with narcotic and other properties, they are of no economic importance. They grow around the Mediterranean Sea.

Mandrill Species of the baboon family, (*Papio maimon*), a native of W. Africa, where it is found in communities. It is remarkable for its bright colouring, the muzzle being bright red with blue on either side, and the hinder parts purplish. The fur is brown and the beard yellowish.

Manet Edouard. French painter. The greatest exponent of the Impressionist school, he was born in Paris, Jan. 23, 1832, and studied under Couture. His work, notably "The Garden," first of the "plein air" school, and "Olympia," aroused much hostility and was frequently excluded from the Salon, causing Manet and his followers to exhibit independently. He died in Paris April 20, 1883.

Manganese Metallic element having the symbol Mn, atomic weight 54.93, and melting point 1898° C. It is a brittle steel-grey metal which oxidises rapidly in moist air. In its commercial form manganese usually contains up to 5 per cent of silicon, which increases the hardness and resistance to corrosion. Its alloys are of great economic value, especially those with steel, and its compounds enter into many industries. Its chief ores are pyrolusite, wad and manganite.

Mange Transferable skin complaint in various domestic animals. It is due to minute parasitic mites. Sarcoptic mange, caused by burrowing itch-mites, occurs in dogs, horses, pigs, goats, cats and others. Psoroptic mange, caused by skin-boring mites, occurs in horses, cattle and sheep. Follicular mange, caused by worm-like mites (*Demodex*), affects the hair follicles of dogs.

Mango Tall, evergreen tree of the cashew family. It is native in the E. Indies and Malaya (*Mangifera indica*). Reaching 30 or 40 ft. in height, it is cultivated in tropical Asia, Africa and America for its fleshy, reddish-yellow, kidney-shaped fruit. This, when unripe, is a favourite ingredient of chutney. Cultivated forms of luscious flavour are esteemed for dessert.

Mangold Wurzel Coarse, overgrown field-beet, a biennial herb of the goosefoot family (*Beta vulgaris*). Red and yellow forms, of varying shape and solid content, serve as winter fodder for livestock. Sugar develops during storage, only old roots being palatable. The so-called root includes the original stem; the so-called seeds are fruit-clusters.

Mangosteen Evergreen tree (*Garcinia mangostana*). It grows in Malaya and the E. Indies and produces a luscious fruit, the size of a small orange. The thick purplish rind encloses a white or reddish pulp of delicate flavour. The juice of the rind is very astringent and is used medicinally in cases of dysentery.

Mangotsfield Urban district of Gloucestershire. It is a junction on the L.M.S. line from Bath and Bristol, 5½ m. from Bristol and 122 from London. There are collieries in the neighbourhood. Pop. (1931) 11,251.

Mangrove Name denoting various trees abounding in tropical coastal swamps. The common mangrove (*Rhizophora mangle*) with thick, smooth, leathery leaves and large four-petalled flowers, sends down from the trunk and branches spreading stilt-like roots which, in conjunction with new growths from seeds germinated in the still hanging fruit and then falling, form interminable forests. Bark extracts are made for tanning. The central American courida or black mangrove (*Avicennia nitida*) is allied to the white mangrove of Queensland and elsewhere.

Manhattan Island of the United States. It is at the mouth of the Hudson River, and most of New York City stands on it. The island is 13 m. long and about 2 m. wide in the centre, narrowing at either end.

Mania Form of insanity characterised by over-activity of the brain. Simple mania is marked by much loquacity and instability of conduct or emotion. In acute mania speech becomes incoherent and will-power disappears, the sufferer becoming "raving mad." The onset is usually gradual, possibly due to toxic changes in the blood of the brain. Sometimes fatal through sheer exhaustion, most cases recover either abruptly or after relapses, but it may pass into chronic mania, and this into dementia.

Manichæism Religious system founded by the Persian Mani, or Manichæus, in the 3rd century, A.D. Based upon Magian dualism, with Buddhist, Gnostic and Chaldean features, it regarded the world as resulting from a conflict of light and darkness, man as engendered by Satan, and Mani himself as the last and greatest prophet. Confronting Christianity and Mithraism, it spread to Mesopotamia, Central Asia, W. Christendom and N. Africa, long resisted Islamic opposition, acquired at times Christian elements, and influenced the Albigenses.

Manicure Term applied to the treatment of the finger nails to

preserve their healthy condition and appearance. The nails are cleaned in soapy water and shaped with a flexible steel file. Orange wood sticks are used for pressing back the cuticle, the loose portions of which are removed by a cuticle knife or fine scissors.

Manila Capital and seaport of the Philippine Islands. It stands on the W. side of Luzon where the River Pasig falls into Manila Bay. The old town is surrounded by a wall, and the cathedral dates from the 16th century. There is a university dating from 1857 and organised on modern lines. The older one, founded in 1585, was closed in 1730. N. of the old city, across the Pasig, are modern suburbs. There is a good harbour and water supply. Pop. 285,300.

In Manila Bay on May 1, 1898, a Spanish fleet was sunk by the Americans under Commodore Dewey, and on Aug. 13 the city was taken.

Manila Hemp Fibre having great strength, tenacity and lightness. It is obtained from the leaf-bases of *Musa textilis*, a plant of the banana family growing in the Philippines. It is used for making ropes and cordage, and the finer grades for muslins and other fabrics, also as a binding material for plaster.

Maniple Division of the Roman legion. From the 4th century B.C. onwards the 3000 heavy-armed infantry formed 20 maniples of 120 and 10 of 60, each with two centuries and a standard-bearer.

Maniple Eucharistic vestment. A narrow stole-like strip about 30 in. long, originally of linen, afterwards of other materials embroidered and fringed, it is looped over the left wrist. Disused by the English Church at the Reformation, it tends to reappear, sometimes for wiping the chalice rim.

Manipur Native state of India. It is in Assam and covers 8456 sq. m. The ruler is a rajah, and the capital is Manipur or Imphal. The Indian Government, which put down a rising here in 1891, receives tribute from the state and has some control over its affairs. Pop. 384,000.

Manitoba Lake of Canada. In the province of Manitoba, it lies 60 m. to the S.W. of Lake Winnipeg. It covers 1500 sq. m. and is 120 m. long. Its waters are carried by the Little Saskatchewan River to Lake Winnipeg.

Manitoba Province of the Dominion of Canada. Between Ontario and Saskatchewan, it is one of the prairie provinces and covers 251,800 sq. m. Winnipeg is the capital. The chief rivers are the Red and the Nelson and its lakes cover 20,000 sq. m. The largest are Winnipeg, Winnipegosis and Manitoba. Wheat, barley, maize and oats are produced in large quantities and there is a good deal of dairy farming. Coal is mined. The province is governed by a legislature of one House and a Cabinet responsible to it, and is represented also in the Parliament at Ottawa.

The province was formed in 1870 from land bought from the Hudson Bay Company. It was enlarged in 1881 and again in 1912. Before 1870 it was called the Red River Settlement. The University of Manitoba was founded in 1877 and owns large tracts of land. It consists of colleges in Winnipeg and the neighbourhood. Pop. (1931) 671,500. See CANADA.

Mann Thomas. German writer. Born at Lübeck, June 6, 1875; at the age of

19 his family removed to Munich, and while working in insurance, he devoted himself to literature. He published *Buddenbrooks* in 1903, a massive story of a family of Lübeck merchants, such as his own. He wrote short stories and a novel, and in 1925 another long novel, *Der Zauberberg* (English translation, *The Magic Mountain*, 1926), the story of the people in a tubercular convalescent home in Davos. He has written essays and one play, and he was awarded the Nobel Prize for Literature in 1929.

Mann Tom. English politician. Born at Foleshill, Warwickshire, April 15, 1856, he worked on a farm and in a coal mine as a boy. Later he became an engineering apprentice in Birmingham. Prominent in the trade union and Socialist movements, he was a leader of the dockers' strike in 1889. He was first secretary of the Independent Labour Party, 1894-96, of the London Reform Union and of the National Democratic League; and became associated with the syndicalist movement. He was active as a Labour leader in Australia between 1902 and 1908, and in S. Africa. In 1918-21 he was general secretary of the Amalgamated Society of Engineers. He has written *A Socialist's View of Religion, Russia* in 1921, *Tom Mann's Memoirs* and *What I Saw in China*, 1927.

Manna Saccharine exudation, obtained from incisions in the stems of *Fraxinus ornus*, the manna ash, a native of S. Europe. It is used in the form of yellowish-brown fragments or flakes in medicine as a mild laxative. Similar exudations are derived from a number of trees, the manna of the Bible probably being that from the tamarisk.

Mannheim Town and river port of Baden, Germany. It is 40 m. from Karlsruhe, where the Neckar flows into the Rhine. It is a modern town with a number of manufactures and a large harbour. The palace, once the residence of the Margraves of Baden, has a museum, picture gallery and library. The National theatre has associations with Schiller. From 1720 to 1778 Mannheim was the capital of Baden. Pop. 247,500.

Manning Henry Edward. English cardinal. Born at Totteridge, July 15, 1808, he was made rector of Lavington in 1834. Manning was attracted by the Oxford Movement and in 1851 joined the Church of Rome. He was ordained priest and worked as chief of the oblates of S. Charles at Bayswater. He acted as assistant to Cardinal Wiseman and succeeded him in 1865 as Archbishop of Westminster. In 1875 he was made a cardinal, and he died Jan. 14, 1892. He is buried in Westminster Cathedral.

Manning was a prominent figure in his day and did a great deal for his Church in England. He was a social reformer, keen on housing and temperance. In *Lothair* he is portrayed as Cardinal Grandison. He wrote *The Eternal Priesthood* and other books.

Manningham Industrial district N.W. of Bradford, on the L.M.S. Rly. Here are large mills of Messrs. Lister and Company, and Manningham Park.

Manningtree Market town of Essex, on the estuary of the Stour, 8 m. from Colchester, on the L.N.E. Rly. The industries include malting and a trade in agricultural produce.

Manoel Two kings of Portugal. Manoel I. was king from 1495 to 1521. He encouraged Vasco da Gama and others to go on voyages of discovery.

Manoel II. was born in Lisbon, Nov. 15, 1889, the son of King Carlos I. and a Bourbon princess. He became king on Feb. 1, 1908, on the murder of his father and his elder brother. In 1910 he was deposed and settled in England. In 1913 he married a princess of the Hohenzollern family. He died July 2, 1932.

Manometer Instrument for measuring the pressure of gases. Its principle is illustrated by a U-shaped tube partially filled with liquid. If the pressure on both surfaces is equal, the height in both limbs remains the same, but with increasing pressure the liquid rises in one limb. The barometer and steam gauge are forms of manometers.

Manor Name used for a landed estate. In the Middle Ages the manorial system was in force over a considerable part of England. The lord, who held the land from the king or a great noble, lived in the manor house; some of it he let out to tenants, who paid him by working for him on certain days. Other parts of the land, called the *desmesne*, he cultivated by the aid of this labour and a further part was woodland or common where the tenants grazed their animals. The arable land was divided into strips, and each tenant, called a *villein*, had a share in each of the common fields of the manor.

The manors varied in size, and the poorer tenants were called *borderers* and *cotters*. None of the tenants was free to leave the estate. The lord held courts and a record or manorial roll was kept of the services due from the tenants for their land.

F. W. Maitland in *Domesday Book and Beyond* thinks the manor was an estate assessed separately for the geld or tax paid to the king. The system began to decay in the 14th century and had disappeared by the 16th, although traces of it remained, copyhold in land for example, and the remaining manorial rights were bought and sold until finally abolished by legislation in 1925. It is estimated that there were 20,000 manors in England.

Mansard Type of roof, named after its French inventor, François Mansard (1598-1666). The lower part of the roof is steeply pitched while the upper part is but slightly inclined. The Mansard roof was suitable for large buildings and provided ample space without unduly increasing the height.

Mansfield Borough and market town of Nottinghamshire, on the Maun, 139 m. from London and 13 from Nottingham, on the L.M.S. and L.N.E. Rlys. It owes its early fame to its association with Sherwood Forest. In the 19th century it expanded a good deal owing to the opening of coal mines, and there are now factories for making hosiery, machinery, silk and cotton goods, boots and shoes. The town has a technical school for the mining industry. Pop. (1931) 46,075.

Mansfield Earl of. Scottish title borne by the family of Murray. The first earl was William Murray, a famous lawyer. Born March 2, 1705, he became a barrister and an M.P., was Solicitor-General and then Attorney-General, and in 1756 was made Lord Chief Justice and a baron. He was one of the leaders of the political group that carried on the government in the interests of George III. He retired in 1788 and died March 20, 1793.

Mansfield gave some famous legal decisions,

including the one that slaves who land on English soil are free. His London house was burned in 1780 during the Gordon riots; another of his residences was Ken Wood at Hampstead.

The earl's seat is Soane Palace near Perth, and his eldest son is called Lord Soane.

Mansfield Katherine. British writer. She was born in New Zealand in 1880, the daughter of Sir Harold Beauchamp, and educated at Queen's College, London. In 1911 she published her first volume of stories *In a German Pension*, and she wrote for *The Athenaeum*. In 1920 a volume of stories, entitled *Bliss*, made her reputation, and this was followed by *The Garden Party*, *Prelude* and *The Daughters of the Late Colonel*. In 1913 she married the critic, J. Middleton Murry. She died Jan. 9, 1923, after a long illness. In 1924 *The Journal of Katherine Mansfield* and in 1928 her *Letters* appeared.

Mansfield Woodhouse

Urban district of Nottinghamshire, 2 m. from Mansfield, on the L.M.S. Rly. Coal mining is the chief industry. Pop. (1931) 13,707.

Manship Paul. American sculptor. Born Dec. 25, 1885, he studied art in Philadelphia and Rome. He soon came to be regarded as one of the leading sculptors of the day. He executed the Morgan Memorial in the Metropolitan Museum of Art in New York and other exquisite pieces there and in Paris.

Mansion House Official residence of the Lord Mayor of London. It stands opposite the Bank of England, was built between 1739-53 from designs by George Dance, and restored and extensively improved in 1930-31, when a fine roof garden was added. The finest room is the Egyptian Hall, wherein the banquets are held. Attached to it is the police court.

There is a mansion house for the Lord Mayor in York, and another in Grafton St., Dublin. Bristol also has a mansion house.

Manslaughter In English law the unlawful killing of another without premeditation. It may be due to an accident or done in the heat of the moment, or as an act of self-defence. It may be the result of neglect, as when a failure to call in a doctor results in death. The maximum punishment is penal servitude for life. Manslaughter is not recognised in Scots law.

Manston Village of Kent, on the coast between Margate and Ramsgate. Here in 1920 a camp was opened for teaching trades to men who had served in the Royal Air Force.

Mansurah City of Egypt. It stands on one of the branches of the Nile, and is a prosperous trading and cotton growing centre. Here, in 1248, St. Louis of France was imprisoned when retreating at the head of his crusading army from Damietta. The fortress which was his prison has been restored. Near are the ruins of a temple dedicated to Isis. Pop. 63,076.

Mantegna Andrea. Italian painter. Born at Vicenza in 1431, he settled in Mantua and soon won a position in the front rank. Nine of his pictures, a series called "The Triumph of Julius Caesar," are in Hampton Court Palace, and he is represented in the Louvre. Much of his work took the form of decorations for churches, among them

the Belvedere chapel in the Vatican, Rome. He died Sept. 13, 1506.

Mantilla National headdress of women in Spain and Spanish countries. Sometimes supported by a lofty head-comb, and draped over the head and shoulders, it may serve as a veil, being made of black or white lace and other material, often costly. It developed from the light cloak thrown over the dress.

Mantis Genus of insects of the orthopterous order. They are not unlike locusts and are sometimes called the praying mantis because the forelegs assume an attitude of prayer.

Mantling In heraldry, the mantelet, lambrequin or scarf, represented as floating from the helm or crest. It is usually jagged as if tattered in conflict, or tasselled. It degenerated into a foliated scroll, or became a mere ornamental appendage to an escutcheon, comprising a background of flowing drapery adjusted in folds, sometimes lined with ermine.

Mantua City of Italy, on the Mincio, 100 m. from Milan. The city was for 400 years the capital of the duchy ruled by the Dukes of the Gonzaga family. It is chiefly interesting as the birthplace of Virgil (q.v.). Pop. 44,200.

Manu Mythical Hindu being. Springing from the self-existent Brahma, he divided himself into male and female, whence came in process of time the present human race. A Manu deluge-legend recalls the Biblical story of Noah. Sanskrit law books, recast about the Christian era, contain digests of primitive law, cited as the Code of Manu.

Manure Name given to the various fertilisers used for enriching the soil. The oldest is farmyard manure which contains all the essentials required by plants. Guano, the excrement of sea-birds, and bone, blood, fish and other organic refuse are valuable fertilisers. To supplement the many organic manures inorganic substances such as sodium nitrate, ammonium sulphate, basic slag, and superphosphate are employed. In certain cases, special fertilisers are used, such as shoddy for hops.

Manuscript Anything handwritten. Specifically the word denotes an ancient or mediæval writing produced before the general adoption of printing in the 5th century; usually abbreviated to MS., plural MSS. Such writings, once made on waxed tablets fastened together, came to be made on papyrus, parchment or paper, forming a volume or roll, or a codex in book form, and multiplied by copying singly. Some contain illuminations of great beauty and historic value. See PALÆOGRAPHY, PALIMPSEST.

Manvers Earl. English title borne by the family of Pierrepont. Charles Medows, M.P., inherited the estates of the Duke of Kingston in 1788 and took the name of Pierrepont. In 1806 he was made Earl Manvers, and his descendants have since held the title. The family seat is Thoresby, near Mansfield, and the earl's eldest son is called Viscount Newark.

Maori People of Polynesian stock in New Zealand. Estimated (1930) at 67,311, mostly in North Island, one-fifth being half-caste, they are tall and muscular, black-haired, with oval faces of Caucasian type. Traditionally arriving from Rarotonga c. 1350, they encountered still earlier Polynesian im-

migrants intermingled with indigenous Papuans. Remarkable cultural developments occurred, marked by jade-adzed timber houses, decorative wood carving and flax weaving. The crulling chiefs practised face tattooing; jade amulets, *tiki*, simulating human embryos, were worn. When Great Britain undertook sovereignty, 1840, conflicts with the natives developed, 1843-47 and 1861-74. Since then the Maoris have become law abiding and nominally Christianised. They have a native representative on the executive council, and four elected members in the Parliament of New Zealand.

Map Representation upon a plane surface of the earth or some part of it. As the earth's surface is curved, its true form and proportion cannot be shown on a map without some degree of distortion. To reduce this distortion as far as possible various "projections" are adopted. Mercator's projection is cylindrical, with parallels of latitude shown as straight lines; other projections are the stereographic, showing less distortion; and the conical, suitable for small areas. Contour maps show the contour of a district by lines running through points of equal elevation.

Maple Genus of deciduous trees and shrubs of the soapwort order (*Acer*). They are natives of N. temperate regions. The fruits are ashlike two-winged "keys." Many species are planted for their valuable timber, sugary product or richly tinted and variegated foliage. Britain's indigenous small-leaved maple is *A. campestre*; the false sycamore or great maple, *A. pseudo-platanus*, 40 to 60 ft. high, has long been naturalised. The spring sap of the still taller American sugar or bird's-eye maple and red-flowered or curled maple regularly yields maple sugar.

Maple Sir John Blundell. English business man. Born in London, March 1, 1845, he joined his father in business as a seller of furniture. Under his control the firm became one of the largest of its kind. It still flourishes in Tottenham Court Rd., London. In 1887 Maple entered the House of Commons as Conservative M.P. for Dulwich, and in 1892 he was knighted. He was made a baronet in 1897 and died Nov. 24, 1903. A well-known racehorse owner, his stables at Chidwicksbury were famous. He rebuilt University College Hospital, near Tottenham Court Road.

Mar Earl of. Scottish title held by the family of Erskine. Mar is a district in Aberdeenshire and in early times was under one of the 7 Scottish earls, but the line became extinct in the 15th century. In 1565 the title was given to John Erskine, but his descendant lost his lands and titles for siding with the Pretender in 1715. In 1824 the earldom was revived for a member of the Erskine family, who, in 1835, became also Earl of Kellie. In 1866 he died, and there was a long dispute about the title. It was given in 1875 to the Earl of Kellie, and its holder is now known as the Earl of Mar and Kellie. His eldest son is called Lord Erskine.

In 1885 the title of Earl of Mar was given to J. F. Goodove-Erskine, and his descendant still holds it. Owing to this unusual procedure there are two Earls of Mar. The one held by the family of Goodove-Erskine was given precedence from 1405; the earl's eldest son is called Lord Garloch (pron. Gherry).

Marabou Central African stork (*Leptopteryx*). Its undertail coverts were formerly collected for millinery and scarf trimmings. Marabou feathers come also from the allied Indian adjutant bird.

Maracaibo City and seaport of Venezuela. It stands on the strait that leads from Lake Maracaibo to the Gulf of Maracaibo, part of the Caribbean Sea. It has a small harbour and is the chief seaport in the republic, oil and sugar figuring among the exports. Pop. 74,800.

Marachesti Town of Rumania. It is in Moldavia, 12 m. from Focsani, on the River Sereth and is an important railway junction. It has two broadcasting stations (76 and 48.95 M.).

In Aug., 1916, an army of Austrians and Germans, then invading Rumania, was met by a defending army near this town. A battle began on Aug. 13 and continued for some days. A succession of German attacks continued until the 19th, when the battle ceased without decisive result, but the Germans did not advance further into the country.

Maraschino Liqueur, made from a cherry that grows in Yugoslavia and Italy. From this the liqueur is distilled and sugar or honey is added to it.

Marat Jean Paul. French revolutionary leader. Born at Boudry, Neuchâtel, he studied and practised medicine, optics and electricity in France, Holland and England. In 1773 he published a *Philosophical Essay on Man*, and in 1789 started a political paper, *L'Ami du Peuple*, which attacked those in authority. He was forced to leave France, but returned in 1792, and was elected to the Assembly. He then engaged in a bitter struggle with the Girondins, which led to his assassination in his bath by Charlotte Corday, July 13, 1793.

Maratha Hindu people inhabiting extensive tracts in W. and Central India. Formerly containing the mediaeval Maharashtra kingdom. They number about 6,500,000; the complex of castes and tribes speaking the Marathi dialects about 19,000,000. Besides Maratha Brahmans of pure descent, there are more or less Aryanised aboriginals descended from non-Brahman camp followers in the Maratha armies. British conflicts with the 17th-18th century Maratha confederacy and early 19th-century campaigns constituted the Maratha wars, which increased the area of the British Empire in India. Maratha units gained distinction during the Great War, especially in Mesopotamia.

Marathon Plain of Greece, 22 m. from Athens. It is famous for the battle fought here in 490 B.C. The Persians had invaded Greece and were encamped on a plain near the sea. There they were attacked by a Greek army, chiefly composed of Athenians, directed by Miltiades. The Greek victory, after an initial repulse, was complete.

Marathon Race Name given to a race on foot for a long distance, so named because after the Battle of Marathon a certain Pheidippides ran the 22 m. to Athens to announce the victory of the Greeks. On his arrival he fell dead. The chief Marathon race is at the Olympic Games, the course being 26 m. 385 yds, covered in 1928 in 2 hours 32 minutes 57 seconds. There is a Marathon race for coaches.

Marazion Market town and seaport of Cornwall, also called Market



A MAORI CHIEF.—Teretimana Teruraporta, a warlike native of New Zealand with his heavily tattooed face, typical of a diminishing Polynesian race. [E.N.A.]

Jew. It stands on Mounts Bay, 4 m. from Penzance, on the G.W. Rly. and the chief industry is fishing. Until 1835 Marazion had its own mayor and corporation. There is a causeway from here to St. Michael's Mount, and in the Middle Ages the town was much visited by pilgrims.

Marble Term loosely applied to any rock capable of taking a high polish. Strictly it means a hard limestone used for ornamental purposes, and more especially those of a crystalline and granular character. The colour varies from white to black, and in some, such as the Devon and Derbyshire marbles, the markings are due to their fossil contents. Statuary marble is quarried at Carrara, Italy, onyx marble in Algeria, green serpentine marbles in Ireland, Italy and Greece.

Marble Arch Gateway near the N. entrance to Hyde Park. A copy of a Roman arch, it was designed by George Nash in 1828 as an entrance to Buckingham Palace. In 1851 it was removed to its present site. In 1930-31 new buildings made great changes near the Arch, which gives its name to a station on the Central London Tube Rly.

March Market town and urban district of Cambridgeshire, 30 m. from Cambridge on the L.N.E. Rly. The chief industry is engineering. Pop. (1931) 11,276.

March Earl of. Scottish title now borne by the eldest son of the Duke of Richmond and Gordon. The first earls were so named because they were the guardians, or wardens, of the march districts. It was held by the family of Dunbar until forfeited in 1434. In 1675 it was given to the Duke of Lennox and it has since been held by his descendants.

From 1697 to 1810 there was another earldom of March, its first holder being William Douglas. His descendant, William, 3rd Earl of March, was made Duke of Queensberry (q.v.).

The English title of Earl of March was held by the family of Mortimer from 1328 to 1425. Later, Richard, Duke of York, the father of Edward IV., was Earl of March.

March Earl of. English soldier. Roger Mortimer, born about 1287, was the eldest son of Edmund Mortimer. The holder of great estates on the borders of Wales, he was prominent in the time of Edward II. He was made Governor of Ireland and was one of the group that followed Thomas, Earl of Lancaster, in his rebellion against the king. He was put in prison, but in 1324 he escaped and went to France. There he became the lover of Isabella, the wife of Edward II., and in 1327 the pair returned to England, took the king prisoner and had him put to death. Mortimer then helped the queen to rule in the name of her son, Edward III., for three years. In 1330 the king took him prisoner at Nottingham and he was hanged at Tyburn, Nov. 29, 1330.

Marchand Jean Baptiste. See FASHODA.

Marches Word used for a borderland, as those between England and Scotland and between England and Wales. In the Middle Ages there was continuous warfare in the former district, the governors of which were called Wardens of the Marches. The march district between England and Wales was governed by Lords Marchers, and castles were built to defend it, among them Ludlow and Wigmore. The authority of the Lords Marchers was taken away in 1536.

Marconi Guglielmo. Italian inventor. Born at Bologna, April 25, 1874, he took out the first wireless telegraph patent on June 2, 1896. In 1899, wireless telegraphy was first used for saving life at sea. In 1901 Marconi succeeded in transmitting and receiving signals between Newfoundland and Cornwall, and since then has taken a leading part in the scientific and commercial development of wireless telegraphy, telephony and broadcasting. In 1914 he began experiments with short waves, which led to the "beam" system of long distance and directed wireless transmission.

He was awarded the Nobel Prize for Physics in 1909, made a Senator in 1915 and a Marquess in 1929. He served with the Italian forces during the Great War.

Marcus Aurelius Roman emperor and Stoic philosopher. Born in Rome April 26, A.D. 121, the son of Annianus Verus, he became co-emperor in 161 with his adopted brother, Lucius Verus. He re-established discipline, ameliorated the conditions of slaves, reformed the civil laws and carried out long and successful wars against the barbarians, who menaced the empire in the north and east.

His *Meditations*, written mostly in camp, and in the midst of public business, show him to have been a man who, at a time of universal corruption and self-indulgence, was self-denying, just and unaffected. He died March 17, 180.

Mardi Gras Shrove Tuesday, or Fat Tuesday, so-called because of the fat ox paraded through the streets in France, the day before Ash Wednesday. It is celebrated in Catholic countries with feasting, processions and merrymaking, and is the last day of a carnival before Lent begins.

Marduk God of Babylon, where he had a splendid temple. He became also the god of the sun and of war and healing, and took the attributes of the old Sumerian deities.

Maree Loch in Ross and Cromarty. About 20 m. from Dingwall, it is 13 m. long and covers about 11 sq. m. It is almost surrounded by mountains and some of the finest scenery in Scotland.

Marengo Village of Italy, about 5 m. from Alessandria. Here on June 14, 1800, Napoleon gained one of his earliest and greatest victories. With 40,000 men he crossed the Alps into Italy and, at Marengo, came face to face with an Austrian army much larger than his own. The French were retreating when Napoleon arrived. He ordered an advance, brought up all his reserves and the Austrians were quickly routed.

Mare's Tail (*Hippuris vulgaris*). Water plant of the natural order *Haloragaceae*. It has a creeping root stock and the whorls of narrow leaves encircle the joints of the slender stems. The small green flowers are stalkless and have red anthers. It is found in shallow pools and lakes.

Margam District of the borough of Port Talbot, Glamorganshire. It is a coal mining centre. The chief building is the restored church, once a Cistercian abbey, of which some ruins, including the chapter house, remain. Near is Margam Abbey, the seat of the Mansel and Talbot families. The estate was sold in 1921.

Margaret Saint and Queen of Scotland. A granddaughter of Edmund

Ironside, she was born in Hungary about 1045, but came to England with her brother Edgar Atheling. The King of Scotland offered them a home, and in 1067 Margaret was married at Duxfermline to Malcolm III. In 1093 her husband was killed, and the same year the queen died leaving three sons, Edgar, Alexander I. and David I., who all became kings. In 1250 she was canonised.

Margaret Queen of Scotland, called the Maid of Norway. She was the daughter of Eric, King of Norway, and through her mother, a granddaughter of Alexander III., King of Scotland. She was born in 1283, and in 1284 was declared heir to the throne of Scotland. In 1290 Alexander died and she became, in name, queen. She crossed over from Norway, but died on arriving at the Orkneys in Sept., 1290.

Margaret Queen of Henry VI. A daughter of René, Duke of Lorraine, and known as Margaret of Anjou, she was born March 23, 1430. In 1445 she was married to Henry VI. at Titchfield Abbey in Hampshire. She was remarkable for the energy which she put into her husband's cause during the Wars of the Roses, although she was partly responsible for his difficulties with his subjects. From 1463 to 1470 she was in France dependent upon the benevolence of her kinsfolk. She returned to England in 1471 with her only son Edward, but the defeat of the Lancastrians at Tewkesbury put an end to her hopes of recovering the throne. She was then made prisoner, and was not released until 1476. Her concluding years were passed in France. She died at Angers, April 15, 1482.

Margarine Name given to a butter substitute. It was made originally from beef fat digested in a weak alkaline solution with peasin, but afterwards improved by churning the fat with milk. In its modern form margarine is made from animal or vegetable fats. Usually hydrogenated or hardened coconut fat, or palm kernel oil is used with liquid cotton seed or arachis oils, and churned with soured milk. Like butter, margarine must not contain more than 16 per cent of water and no preservatives except salt. There are heavy penalties for adulterating margarine or selling it without it being clearly labelled.

Margarita Island in the Caribbean Sea. It is separated by the Strait of Margarita from the mainland of Venezuela, to which country it belongs. Asuncion is the capital. The area is about 400 sq. m. Off its shores are pearl fisheries.

Margate Borough, pleasure resort and seaport of Kent. It is on the E. coast, near the North Foreland, 74 m. from London, on the S. Fly. It has attractions of every kind, including winter gardens, pier and golf links. The bathing and sands are good. The eastern part is known as Cliftonville. In 1931 a new general hospital was opened. Pop. (1931) 31,312

Margay Brazilian name of a small tiger-cat, *Felis tigrina*. It ranges from Mexico to Paraguay. A forest dweller, 24 in. long, with 12 in. tail, its harsh grizzled-grey fur is variously spotted and ringed; the cheeks have three black stripes. It preys on small mammals and birds, and is sometimes tamed for destroying rats in houses.

Margrave German title now extinct. It meant count of the mark, or march, and was equivalent to marquess. It

was given at first to those who looked after the march or border districts and later became the title of certain rulers, e.g., the Margraves of Brandenburg and Baden.

Marguerite Name loosely applied to the composite flowers of various hardy perennial herbs of the type of the ox-eye daisy, *Chrysanthemum leucanthemum*. A shrubby form from Tenerife, *C. frutescens*, and a yellow variant, are favourite garden marguerites. The half-hardy blue marguerite, *Agathaea coelestis*, is quite distinct. See DAISY.

Marguerite of Valois. See VALOIS.

Maria Theresa Empress of the Holy Roman Empire. A daughter of Charles VI., she was born in Vienna, May 13, 1717. As her father had no sons, he named her as his successor on the imperial throne, and ruler of Austria, and persuaded the Powers to agree to this. When he died, however, a Bavarian prince was elected emperor, and Frederick the Great invaded Silesia, which he claimed by virtue of an old treaty. The result was a European war which lasted until 1748, and then, after a period of peace, came the Seven Years' War, 1756-63. Maria Theresa lost Silesia, but in 1748 she secured the election of her husband, Francis, Duke of Lorraine, whom she had married in 1736, as emperor. On his death, her son, Joseph II., was elected, but Maria Theresa remained the real ruler until her death, Nov. 29, 1780. Her large family included the Emperor Leopold II. and Marie Antoinette.

Another Maria Theresa, also an Austrian princess, was the wife of Louis XIV.

Marie Antoinette Queen of Louis XVI. of France. A daughter of the Empress Maria Theresa and the Emperor Francis I., she was born in Vienna, Nov. 2, 1755. In May, 1770, she married the dauphin, who in 1774 became King of France. She soon became unpopular, and was regarded as responsible for much of the misery in the land and as the evil genius of her husband. Although by no stretch of imagination could the terrible condition of France before the Revolution be charged against the queen, her conduct was foolish, or worse, and she seems to have possessed neither ability nor tact. Her relationship with Austria was another cause of mistrust, especially when the Revolution began. In 1792, with Louis, she was arrested. Attempts to release her failed. At her trial in Oct., 1793, she defended herself with dignity and spirit, but sentence of death was passed Oct. 16, 1793, and on the same day she was guillotined. See LOUIS XVI.

Marie de Medici Queen of France, and wife of Henry IV. She was born at Florence in 1573 and married Henry in 1600. After the murder of her husband in 1610, ten years after their marriage, she was made Regent for Louis XIII. She was greatly influenced by the Italian Concini and his wife. After Concini's murder in 1617 she was at war with her son Louis XIII. from 1617 to 1620. In 1630 Richelieu exiled her to Compiègne, whence she escaped to Brussels. She is said to have died in poverty at Cologne, July 3, 1642.

Marie Louise Empress of the French. A daughter of the Emperor Francis I., she was born Dec. 12, 1791. In 1810 she became the second wife of Napoleon. In 1814 she returned to

Austria, but the rest of her life was passed in Italy where Parma and other territories were given to her. She had a son, the Duke of Reichstadt, by Napoleon and several children by her lover, Count von Neipperg, whom she married in 1822. She died in Vienna, Dec. 18, 1847.

Marienbad Spa in Czechoslovakia. Attractively situated 2090 ft. high among pine woods, it became popular in the 19th century owing to the curative properties of its mineral springs for gout and diabetes. The old abbey of Tepla nearby originally owned the springs. The buildings are modern. Pop., about 7000.

Marigold Annual composite herb with orange or lemon-coloured flowers. The common pot-marigold is *Calendula officinalis*, from S. Europe: an allied Cape marigold, white-rayed with purple disk, now called *Dimorphotheca*, yields also hybridised black-eyed orange sorts. Mexican species of *Tagetes* furnish so-called African and French marigolds; double-flowered sort varieties occur. The corn marigold is *Chrysanthemum segetum*. See MARSH MARIGOLD.

Marine Soldier who serves on board ship. Marines were first raised in England in 1664, but the Royal Marines in its present form dates from 1755 when the Admiralty took over the force. It has a long record of service, and its motto is *per mare per terram*. From 1859 to 1923 it was divided into two branches, the R. Marine Artillery and the R. Marine Light Infantry. The men are known popularly as the jollies, and officers and men wear white helmets. They are organised in three divisions, Chatham, Portsmouth and Plymouth, and have a depot for recruits at Deal. The Royal Marine Police Force dates from 1922.

Marine Ministry of. Department of State. Some countries, e.g., Canada and France, call the department that is responsible for the navy by this name. It is the equivalent of the British Admiralty, and like it its head is a politician.

Mariners' Compass Instrument for directing the course of a vessel. It consists of a case containing a circular card or dial fixed upon a magnetised steel needle. The dial is marked out into 360 degrees, and the four cardinal points, the north coinciding with the north point of the needle. Each quadrant is divided further into eight points, north-north-east, etc. The compass is contained in a case or binnacle and is placed usually on the highest part of the deck.

Mariolatry Term deprecatory of the Roman Catholic doctrine and practice concerning the Virgin Mary. Apologists claim that while *latreia*, worship, is due to God alone, the Virgin is entitled to *hyperculia*, a lesser form of veneration, invoking her aid in human intercessions. Hence the repetition of the *Ave Maria*, with or without the rosary, and the veneration of images and pictures. The doctrine, abandoned by the Protestant Reformation, is reproached by the 22nd Article of Religion of the Church of England.

Marionette Miniature figure of wood, cardboard, leather or other materials manipulated on a mimic stage by wires or strings. Puppets with movable limbs were used in ancient Egypt, Greece and Rome. In 16th-18th century Europe, especially France

and Italy, they were employed to depict Biblical stories and other incidents of dramatic interest, and survive in Punch and Judy.

Maris Jacob. Dutch painter. Born at the Hague in 1837, the eldest of three artist brothers, he is known mainly as a painter of landscapes, in which the subject is subordinate to the effect. He painted "Landscape near Dordrecht," "Seaweed Carts," and "Scheveningen." He died in 1899. The work of his brother Matthew (1839-1917) has a touch of mediaevalism. "Bride of the Church," "Four Mills," and "Girl Feeding Chickens" are among his best works. William (1844-1910) lived mainly in London. His work is modern in treatment. "Cows Beside a Ditch" is an example.

Marists Roman Catholic congregation of priests and laity. Its members conduct educational, sick-nursing and missionary enterprises. Founded at Belley, France, in 1816, the Marist fathers and associated lay brothers and lay sisters, maintain a novitiate at Paiknton, Devon, and several missions in New Zealand, Fiji and other Pacific islands.

Marius Gaius. Roman soldier and statesman. Born in 157 B.C., he gained his early experience of war in Africa against the Carthaginians. In 119 he was chosen tribune and in 107 consul: as consul he ended the war against Numidia by capturing its king, Jugurtha. He next crushed the hordes of barbarians who had invaded the Roman realm. During this period he was elected consul four times in succession and at the end was hailed as the third founder of the city.

Marius was again chosen consul in 100. Between 100 and 85, although not consul, he did good work in putting down rebellions. When Sulla was preferred to Marius as the commander in the war against Mithradates, a furious quarrel broke out between them and Marius only saved his life by escaping to Africa. Soon, however, he returned to Rome and with Cinna captured the city. He then ordered a massacre of his enemies, and for five days, it is said, 4000 slaves revelled in the task of slaughter. A few weeks after being chosen consul for the seventh time, Marius died (85 B.C.).

Marjoram Genus of perennial aromatic herbs or undershrubs (*Origanum*). They are indigenous to N. temperate regions. Wild marjoram, 1 to 3 ft. high, is purple-flowered. Sweet or knotted and pot marjoram are two cultivated culinary forms whose leaves are used for stuffing and soupsavouring. Hop-marjoram or dittany of Crete (*O. dictamnus*), introduced into Tudor England, preferably grows under glass.

Mark German unit of currency. Divided from 1876 into 100 pfennig and coined in silver just under 1s. After the Great War its value depreciated, and in 1924 a new mark, called the Reichsmark, was introduced and given the value the mark had before the war. It is coined in silver and is issued in notes for ten marks, 20 marks, and other denominations.

There have been other coins of this name. The Anglo-Saxons had a mark and there was a Scottish mark worth 13s. 4d. In the Middle Ages the mark was also a unit of weight.

Mark One of the four evangelists. He was a Jew, probably from Cyprus, and the son of a Christian named Mary. Known as John Mark, he accepted Christianity and went on a missionary journey with S. Paul, and

his own cousin, Barnabas. He left them at Perga and later was in Rome with S. Peter, who, it is believed, supplied him with much of the information contained in his gospel. He is said to have died in Egypt. His day is April 25. He is patron saint of Venice (q.v.).

Mark The Gospel of. Second book of the New Testament. As early as A.D. 130 Papias recorded that Mark, having become Peter's interpreter, wrote down all he remembered. This apparently occurred at Rome. The work is a brief, rugged narrative, a transcript of life, dealing with the acts rather than the sayings of our Lord. It was utilised by Matthew and Luke as the framework for the other two synoptic gospels. The last 12 verses are usually considered an addition by another pen.

Mark Antony Roman statesman, properly, Marcus Antonius. Born about 83 B.C. he was a kinsman of Julius Cæsar with whom he was closely associated. He helped Cæsar to defeat Pompey at Pharsalus in 48 B.C., and the two were consuls in 44. After Cæsar's murder, Antony was the leader of his followers, and with Octavian, the future emperor, and Lepidus, formed the triumvirate to restore order. They acted with great thoroughness, and no little injustice and cruelty: Antony and Octavian destroyed the army of Brutus and Cassius at Philippi, and divided the Roman realm between them. Antony, as ruler of the eastern portion, went to Egypt, where he became the lover of Cleopatra. More than once he quarrelled with Octavian, and the final struggle came in 31 B.C. The naval fleets met off Actium. Antony's ships were scattered or destroyed, but with Cleopatra he managed to get back to Egypt. There in 30 B.C. he committed suicide. Antony is known largely through the character drawn by Shakespeare in *Julius Cæsar* and *Antony and Cleopatra*.

Market Place where goods are sold. In olden times the right to hold a market was conferred by a king or lord. For the privilege money was paid, and market rights became very valuable. Until recently the Duke of Norfolk owned the markets in Sheffield, and the Duke of Bedford owned Covent Garden market in London. To-day nearly all the markets are owned and controlled by the city or borough councils. The great London markets are controlled by the corporation of the city or the London County Council.

Many towns, Nottingham for instance, had a large open square or market place in which the market was held, traders erecting their stalls and displaying their wares there. Some of them remain. Cattle markets are still held in uncovered places, but these are now usually distinct from ordinary markets.

Market Bosworth Village of Leicestershire. It is 12 m. from Leicester, on the L.M.S. Rly. There is an old grammar school, and the town has an agricultural trade. Near is the field on which the battle was fought in which Richard III. was killed, Aug. 22, 1485. Pop. 886.

Market Deeping Village of Lincolnshire. It is on the Welland, 8 m. from Peterborough, in the fen district. There is a station on the L.N.E. Rly. at Deeping St. James, 3 m. away. Pop. 888.

Market Drayton Market town of Shropshire. It is on the River Tern, 18 m. from Shrewsbury, on the G.W. Rly. The parish church is Gothic.

At the grammar school Robert Clive was educated. There is a trade in agricultural produce.

Market Garden Land on which fruit and vegetables are grown for sale. It is defined by law as "a holding wholly or partially cultivated for growing produce for market." Market gardens are found in nearly all parts of the country, but especially around Worthing, the valley of the Lea in Hertfordshire, and areas in Middlesex, Kent, Derbyshire, Worcestershire, and Cambridgeshire. In Scotland there is a market gardening district in Lanarkshire. Fruit and vegetables are grown under glass for the early market, particularly in the Channel Islands. Market producers are legally entitled to compensation from their landlords for improvements made on their holdings.

Of late years more attention has been paid to the grading and packing of market garden produce. Under the national market scheme a system of grading has been introduced and packing stations for fruit have been established at Cottenham in Cambridge and in Kent.

Market Harborough Urban district and market town of Leicestershire. It stands on the Welland, 16 m. from Leicester and 81 from London, and is served by the L.M.S. Rly. and a canal. There is a beautiful old church with a broach spire and an old grammar school, the latter a quaint building standing on wooden pillars. Boots and tyres are made, and the preparation of foodstuffs is a leading industry. Pop. (1931) 9312.

Market Rasen Urban district and market town of Lincolnshire. It is 13 m. from Lincoln, on the little River Rasen, and is reached by the L.N.E. Rly. Pop. (1931) 2048.

Market Weighton Market town of Yorkshire (E.R.). It is 22½ m. from York and 192 from London by the L.N.E. Rly. A canal goes from here to the Humber. The town has a trade in agricultural produce.

Markinch Burgh of Fifeshire. A coal mining centre, it is 33 m. from Edinburgh, and is served by the L.N.E. Rly. There are paper mills. Pop. (1931) 1988.

Mark Lane Street in London. It runs to Fenchurch Street. It contains the new and the old corn exchange.

Marl Name given to many clays which contain varying proportions of calcium carbonate. They are used as a dressing for soils deficient in lime. Many so-called marls of the Old Red Sandstone, Permian and Triassic systems are devoid of calcium carbonate, being simply friable clays containing more or less sand.

Marlborough Borough of Wiltshire. It is on the Kennet, 76 m. from London, on the G.W. Rly. There are two old churches, and some ancient inns and houses. The Castle Inn is now part of the college. There is an agricultural trade. Pop. (1931) 3492.

Marlborough College is on the edge of the town. Founded in 1843 for the sons of the clergy it was thrown open to sons of laymen in 1853. It stands in extensive grounds. Its fine range of buildings includes a chapel and a war memorial. It has accommodation for about 700 boys.

The hills near Marlborough are known as

the Marlborough Downs and are famous for their sheep.

Marlborough Duke of. English title held by the family of Churchill. In 1626 John Ley was made Earl of Marlborough, and the title was held by three of his descendants. In 1689 John Churchill was made earl, and in 1702 duke. In 1722 his title passed to his daughter, Henrietta, Countess of Godolphin, and on her death to Charles Spencer, 5th Earl of Sunderland, a son of the duke's other daughter.

John Spencer-Churchill, the 7th duke, was Lord Lieutenant of Ireland, 1876-80. In 1892 his grandson, Charles Spencer-Churchill, born Nov. 13, 1871, became the 9th duke. He was under-secretary for the colonies in 1903-05. His eldest son is called the Marquess of Blandford, and his seat is Blenheim, near Oxford.

Marlborough John Churchill, Duke of. English soldier. Born at Ashe, Devon, June 24, 1650, and educated at S. Paul's School, London, he became a page at court and then entered the army. He first served James II., but after the revolution of 1688 he joined William of Orange, who gave him an earldom and appointed him commander-in-chief. In 1702 he was created duke and given the command of the English forces in the war of the Spanish Succession. The greatest soldier of his age, Marlborough saved Austria from invasion by the French by his victory at Blenheim in 1704, and foiled Louis XIV.'s schemes for the invasion of Holland by the victories of Ramillies (1706), Oudenarde (1708) and Malplaquet (1709). His wealth and unscrupulousness gained him many enemies who seized the opportunity afforded by the failure of his wife's influence with Queen Anne to obtain his recall in 1711. He was accused of peculation, and dismissed from his office. Reinstated for a time by George I., whose accession he did much to secure, he died on June 16, 1722.

Marlborough House Royal residence in London. It stands at the western end of Pall Mall. It was built by Wren for the 1st Duke of Marlborough in 1709-10, became a royal residence in 1817, and later was the home of two Princes of Wales, afterwards Edward VII. and George V. From 1910 until her death it was the residence of Queen Alexandra. The house is of red brick and has gardens covering four acres. In 1932 a sculptured monument to the late Queen-Mother was erected here and was unveiled by the King.

Marlinspike Iron instrument used on board ship. 10 or 12 in. in length, it is employed for fastening knots and loosening rope strands when splicing.

Marlow Urban district of Buckinghamshire. It is on the Thames, 32 m. from London, on the G.W. Rly. The grammar school dates from the 17th century. A suspension bridge crosses the river. Marlow has breweries and other industries and is much visited for its boating. It is called Great Marlow to distinguish it from Little Marlow, a village 2 m. away. Pop. (1931) 5087.

Marlowe Christopher. English dramatist. Born at Canterbury in 1564, he was educated there and at Cambridge. Having taken his degree he went to London where he associated with Shakespeare and other writers of the time. He was killed near Greenwich during a quarrel in 1593, just when he had been summoned before the privy council

to answer a charge of heresy. He was buried in the churchyard at Deptford, and in 1891 a memorial to him was unveiled at Canterbury.

Marlowe wrote several plays of outstanding merit, notably *Tamburlaine the Great*, *The Tragical History of Doctor Faustus*, *The Jew of Malta* and *Edward II.* He also left translations from Musaeus, Ovid, and Lucan and wrote some excellent lyrics. His unfinished play, *Dido, Queen of Carthage*, was finished by Thomas Nashe.

Marmalade Preserve originally made of quinces, now usually of Seville oranges. The fruit is cut up, pips and inner pith are removed, sugar is added, and the whole is then boiled. Lemon and apple marmalade are varieties of jam. The Central American marmalade tree, *Lucuma mammosa*, bears plum-shaped fruit whose quince-like pulp is called natural marmalade. The story goes that marmalade was first made for Mary, Queen of Scots, who referred to it as a pleasing food for *ma mulade*. The preserve is largely made at Dundee and Paisley.

Marmara Sea of. Inland sea between Europe and Asia Minor. The Dardanelles lead from it to the Aegean Sea and the Bosphorus to the Black Sea. It is 175 m. long, and covers 4500 sq. m. Its waters are Turkish and its old name was Propontis. In the sea are a number of islands. One, called Marmara, is noted for its marble.

Marmont Auguste Frédéric Louis Viesse de. French soldier. Born July 20, 1774, at Châtillon-sur-Seine, he became Napoleon's aide-de-camp and ably supported him in many campaigns. He was made Duke of Ragusa in 1808 and Marshal of France in 1809, and in 1811 he succeeded Masséna in the chief command in the Iberian Peninsula. After the capture of Paris by the Allies in 1814, he attached himself to the Bourbons, was given many honours, and went into exile with Charles X., dying in Venice March 2, 1852. He is remembered for his *Esprit des Institutions Militaires*, 1845, and nine volumes of *Mémoires*, published posthumously.

Marmoset Smallest of the monkeys. It is about the size of a squirrel, with a long tail and thick fur. There are two genera, *Midas* and *Hayale*, inhabiting tropical America. Easily tamed, they make attractive pets. The name "ouistiti" is applied to some from the whistling noise they make when disturbed.

Marmot (*arctomys*). Genus of rabbit-like rodents inhabiting N. temperate regions. They are stout, thick-set, burrowing vegetable-feeders, generally hibernating. Besides the Alpine marmot, 15 to 25 in. long, with short, bushy tail, inhabiting the Pyrenees, Alps and Carpathians, the bobac, 15 in. long, ranges from Germany's eastern frontier into Siberia; other species occur in the Himalayas and Central Asia. N. American marmots include the woodchuck, 14 in. long, with 7 in. tail, ranging from Manitoba to Carolina, and often a farmer's pest.

Marne Department of N.E. France. It has an area of 3167 sq. m. and a population of 397,773. The western part, near Reims, is hilly, with chalky cliffs, and here and at Épernay and Châlons are the famous vineyards of Champagne. Oats, rye, barley and potatoes are grown. Reims carries on an old woollen industry, besides the manufacture of casks and cases for wine, and also glass and metal works. The chief towns are Châlons, the capital, Reims, Épernay and Vitry.

The River Marne runs through the department. It forms a canal from Paris to Dizy, and has canal connections with the Saône, the Rhône and the Aisne. Communication between the departments is largely by means of these canals.

Marne Battles of the. Decisive battles of the Great War. The first battle, Sept. 6-9, 1914, effectively checked the great German advance. The German right wing, under Von Kluck, having crossed the Marne and exposed their right flank, Joffre launched an attack under Maunoury, which made Kluck turn westwards, leaving a gap between his left and Bülow's right. The British attacked here, driving the Germans beyond the Grand and Petit Morin, and disorganising their front. Kluck began to retire on Sept. 9, exposing Bülow still more, and allowing Foch to attack. The British crossed the Marne with the Germans in full retreat.

The second Battle, July 18, 1918, marked the limit of Germany's last big offensive. Pushing on to reach Paris, they crossed the Marne east of Rheims, making a salient in the Allied lines. Foch sent a Franco-American force against the west of this curve, which drove the Germans across the Marne and, after stubborn fighting, defeated them at Seringses.

Marochetti Carlo. Italian sculptor. Born in Turin in 1805, he studied art in Paris and there made his reputation. In 1848 he settled in London and in 1866 was made an R.A., but he was again in France when he died June 4, 1868. His work includes a relief on the Arc de Triomphe in Paris, the statue of Richard I. at Westminster, the Inkerman memorial in St. Paul's cathedral, London, and a statue of Queen Victoria in Glasgow.

Maronites Community of Syrian Christians. Originating in Lebanon in the 4th or 7th century they have belonged to the Roman communion since 1445. See DRUSES.

Maroon Twine-bound pasteboard box of gunpowder with quick-fire priming. It simulates cannon firing. During the Great War maroons gave warning of imminent air raids.

Marple Urban district of Cheshire. It is 12 m. from Manchester, on the little River Goyt and is served by both railway and canal. The chief industry is the manufacture of cotton goods. Marple Hall, a Jacobean house, was once the seat of the families of Vernon and Bradshaw. Pop. (1931) 7390.

Marquesas Group of 13 volcanic islands N. of the Low Archipelago, S. Pacific. They are under French protection. Occupying 478 sq. m., the largest are Nukahiva, 70 m. round, and Hiva-oa, 60 m. round; six are inhabited. The people are Polynesians. The S. or Mendaña group was discovered in 1595, the N. or Washington group in 1791. France took formal possession in 1842. Pop. 2500.

Marquess Title in the British peerage, ranking next below that of duke. It is a form of the German margrave. It was used in France in the form of marquis, and as marchese is still used in Italy. In England the first marquess was created in 1385. The senior marquess is the Marquess of Winchester. The coronet bears four strawberry leaves and four pearls. A marquess is styled "the most honourable." His younger sons and his daughters have the courtesy title

lord or lady prefixed to the Christian name. The wife of a marquess is a marchioness.

Marquetry Form of flat-surface inlay work of ornamental woods, ivory, bone, tortoiseshell, mother-of-pearl or metals used for decorating furniture, cabinets and small articles. Early Italian marquetry consisted of geometrical wood-inlays, but in later Italian work pictorial designs became common. In Holland and France in the 17th century, and in England in the 18th, some fine work was done.

Marquette Jacques. French explorer. Born at Laon in 1637, he became a Jesuit. In 1686 he was sent to Canada on missionary work and for 7 years he worked among the Indians who lived around the Great Lakes. In 1673 he went on a journey down the Mississippi which he was one of the first to explore. He died May 18, 1675, and left a *Journal*.

Marrakesh City of Morocco, sometimes called Morocco. It is 250 m. from Fez and 90 m. from the coast. There are many mosques, the most notable being the Kutubia. Leather goods and carpets are made and the city is an important trading centre. Pop. 153,000.

Marriage Union between man and woman recognised by law or custom. It arose at a very early stage in human society, as without something of the kind it was impossible to fix or enforce the responsibilities of parentage. It was also necessary in the interests of the woman and for determining the ownership of property.

Marriage may be monogamous or polygamous. Among many primitive peoples polygamy was, and is, recognised. But in Christendom monogamy was gradually established, and today the laws of all Christian countries forbid polygamy. Another form of early marriage was the group marriage, a union of men and women indiscriminately, but only within a certain circle. Polyandry, the union of one woman with two or more men, is also known to have existed in certain early societies.

The customs which attend marriage are extremely old and varied. Among many peoples there is a pretence that the woman is captured. In other cases she is purchased and payment is made for her to her father or other relative. On the other hand, in some cases money or property is given with her. In almost all states of society her legal position is inferior to that of her husband, and in quite a number she is regarded merely as his property. From this idea even the most advanced communities have only broken away in recent years.

LAWS AND REGULATIONS. Every community has its own marriage laws. In England no one under 16 years of age can be legally married, and before the age of 21 the consent of the parents must be obtained. Marriages between near relatives are forbidden. There is a table of prohibited degrees drawn up by the church, but the secular law now allows marriage between a man and his deceased wife's sister, and other unions between persons of similar degrees or relationship. These were legalised by acts passed in 1907, 1921 and 1931, but such unions are still disliked by the church.

In England marriages can be celebrated either in the registrar's office or in church, either by certificate, licence, or banns. Of civil marriages the simplest form is by certificate. The parties must give personal notice to the registrar of the district in which they have

lived for at least 7 days. If they have lived in different registration districts notice must be given in each. In the case of marriage by licence, only one of the parties need give notice, but he or she must have lived in the district for at least 15 days; the other party must reside in England or Wales at the time. In the case of marriage by certificate, the registrar will issue the certificate 21 days after the notice has been given, and the marriage can take place within three months. In the case of a marriage by licence he will issue it on the following day, and the marriage can take place within six months. A certificate costs a few shillings, but a licence costs about £2 10s.

Religious marriages are either by banns or by licences. If the former, the names must be read out on three consecutive Sundays in a church of the parish in which the parties reside or in which they habitually worship. If they live in different parishes the names must be read in both. The clergyman can then marry them at any time. If a licence is preferred to banns this can be obtained from a surrogate of any archbishop or bishop.

Another method is to secure a special licence from the office of the Archbishop of Canterbury at 23 Knightbridge St., London, E.C. This costs about £25 and allows the parties to be married at any time and at any place without previous residence therein.

SCOTS LAW. The law of Scotland on the subject differs a good deal from that of England. No person can marry under the age of 16, but the requirement of English law that the consent of the parent is required to the marriage of any person under 21 has no place in the law of Scotland. No valid marriage can take place in Scotland unless one of the parties has his or her usual residence in Scotland, or has resided in Scotland for 21 days immediately preceding the marriage.

In Scotland a marriage may be either regular or irregular. Both are fully binding, and only differ in the manner in which they are constituted. A regular marriage must be celebrated by a minister of religion after the banns have been proclaimed or a proper notice of the marriage has been given, but it need not take place in a church. An irregular marriage may be contracted in one of three ways. (1) The parties may consent to marry one another, and this is sufficient to constitute the marriage.

(2) If a woman has allowed a man to have intercourse with her on the faith of a promise previously made to marry her, a valid marriage is constituted by the intercourse.

(3) The third method is by habit and repute. In this the consent necessary for the marriage may be inferred from the fact that the parties have lived together as man and wife for some considerable time, and that the woman has occupied the position of a wife in the man's household and has been regarded as his wife by general repute.

All regular marriages must, by law, be registered within three days. Irregular marriages need not be registered, but the parties may have the marriage registered by applying jointly to the sheriff substitute at any time within three months of the marriage. Failure to register a marriage will not affect its validity.

Marrow Soft tissue in the interior of bones. Red marrow, in spongy bones, contains delicate cells from which the red corpuscles are largely recruited; yellow marrow, comprising about 95 per cent. of fat-cells, fills the cavities of tubular bones. The so-called spinal marrow, occupying the cavity

running through the vertebrae, is the nervous system's central axis.

Marryat *Frederick*. English author. Born at Westminster, July 10, 1792, he entered the navy and was on active service during the latter part of the war with France. In 1830, having just begun to write novels, he retired from the service as a captain. He devoted some of his time to improving the system of signalling at sea, for which he was made an F.R.S. He died at Langham, Norfolk, Aug. 8, 1848.

Captain Marryat's many books, in which he embodied his experiences of the sea, were, and still are, among the most popular of boys' stories. The first was *Frank Mildmay*, and some of the best are *Peter Simple*, *Jacob Faithful*, *Mr. Midshipman Easy*, *Masterman Ready* and *The Children of the New Forest*. His daughter, *Florence Marryat* (1838-90), wrote many novels and some books on spiritualism.

Mars First of the superior planets beyond the earth. Its distance from the sun is 141,384,000 m., its mean diameter 4230 m. or rather more than half that of the earth, and its year measures 687 solar days, with a day of 24 hrs. 37 min. 23 secs. Mars has two small satellites discovered in 1877, one revolving round the planet in 7 hrs., the other in 30 hrs. Well-defined markings or "canals" were discovered by Schiaparelli in 1877 and these and other regional markings show seasonal changes and suggest the presence of snow and vegetation. Some think that Mars is inhabited, as its climate could sustain life in some respects as we know it.

Mars Roman god of war and husbandry. Although the Romans commonly identified him with the Greek Ares, he never lost his essentially Latin character. Deemed the legendary father of Romulus, he named the first month of the Roman year. His first altar stood in the Campus Martius, used by Roman youth for warlike exercises.

Marsala Seaport of Sicily. Situated at the island's westernmost point, 19 m. S.S.W. of Trapani, it is the centre of a wine-producing region, and during the 19th century developed a large export trade in Marsala wine, a fortified white type with 20-25 per cent. alcohol, vatted and blended like sherry. The town, whose name is Saracenian, witnessed Garibaldi's landing, 1860. It occupies the site of the Carthaginian stronghold Lilybæum, whose surrender to Rome, 241 B.C., ended the First Punic War. Pop. 50,200.

Marsden Market town and urban district of Yorkshire (W.R.). It is 7 m. from Huddersfield and 196 from London by the L.M.S. Rly. Here are textile manufactures. Pop. (1931) 5720.

Marseillaise National song of the French republic. It was written by C. J. Rouget de Lisle in 1792 and was first sung by a body of men from Marseilles on entering Paris during the disturbances of that year.

Marseilles City and chief seaport of France. It stands on the Gulf of Lyons, 410 m. by railway from Paris. It has enormous docks which a canal connects with the Rhône. The buildings, mainly modern, include a magnificent cathedral. The Hotel de Ville dates from the 17th century. The chief industry is shipping. It has a broadcasting station (315 M., 1.6 kW.). Pop. (1926) 652,200.

Marshal Title of honour. It meant a man who had the care of horses and at first the earl marshal was something like master of the horse to the king. To-day in England he is one of the great officers of state. There is also a marshal of ceremonies in the royal household.

As a military title, marshal originated in France and was given to famous soldiers by Louis XIV. Napoleon made great use of the dignity as a reward for services in the field. It fell into disuse after 1871, but was revived in 1916 for those who had distinguished themselves in the Great War. The English equivalent is field marshal (*q.v.*).

Marshall Group of islands in the Pacific Ocean. They lie to the east of the Carolines, just north of the equator. Jaluit is the capital. They cover 160 sq. m. and produce copra. Two islands were taken by Germany in 1885 and since the Great War have been ruled by Japan under mandate from the League of Nations. Pop. 10,000.

Marshall-Hall Sir Edward. English lawyer. Born at Brighton, Oct. 29, 1865, he was called to the bar in 1883. He appeared with unrivalled distinction in some of the leading criminal cases of his time. Made a K.C. in 1898, he was Unionist M.P. for Southport, 1900-06 and East Toxteth, 1910-16, when he was appointed Recorder of Guildford. Knighted in 1917, he died Feb. 24, 1927. Hon. E. Marjoribanks wrote his *Life*.

Marshal of the Air Highest rank in the Royal Air Force. It corresponds to admiral of the fleet in the navy, and field marshal in the army.

Marshalsea Former prison in Southwark, London. Built originally in the 14th century, or earlier, it was pulled down about 1780, rebuilt in 1811, closed in 1819, and finally demolished in 1887. Dickens's father was here for debt, and the novelist describes it in *Little Dorrit*.

Marsh Mallow (*Althaea officinalis*). Perennial herb of the mallow order, native in temperate regions. Occurring on British maritime marshlands, it is a downy plant 2 to 3 ft. high, with large, thick, oval leaves and rose-coloured 1 to 2 in. flowers. The highly mucilaginous root furnishes gullmauve lozenges and marsh mallow cream. See HOLLYHOCK.

Marsh Marigold (*Caltha palustris*). Perennial herb of the buttercup order, native in N. temperate regions. Its fleshy, creeping rootstock bears large smooth kidney-shaped leaves and showy 1 to 2 in. flowers of golden petal-like sepals. Double-flowered garden varieties exist.

Marston Moor District between York and Knarborough famous for the battle of 1644. The Parliamentary army, aided by the Scots, was besieging York. Prince Rupert marched north to relieve it. The Parliamentarians, under Fairfax and Cromwell, and the Scots prepared to meet the Royalists on Marston Moor and were followed by Rupert and the force under Newcastle that had been freed from York. The battle took place on the evening of July 2. Fairfax was routed, but Cromwell's forces turned the scale. The Royalists, about 25,000 strong, were utterly beaten, leaving about 3000 dead on the field.

Marsupial Lowly order of the mammals. Coming next above

the most primitive groups, it is distinguished by the young being born in an immature condition and continuing their development in an abdominal pouch or marsupium. The order includes the opossums and bandicoots, wombats, kangaroos and phalangers.

Martello Tower Circular fort erected at intervals on the English coast and in the Channel Islands at the time of the threatened invasion by Napoleon. They are about 40 ft. in height with the entrance about 20 ft. above the ground, and were intended to accommodate a small garrison with cannon. Originally a martell was an Italian bell tower for giving warning against pirates.

Marten (*Mustela* or *Martes*). Name of various arboreal carnivorous mammals of the weasel family, distributed in the N. hemisphere. The European pine-marten, 18 in. long, with 9 to 12 in. tail, still lingers in Britain. The white-breasted beech-marten is widely distributed in Central Europe and W. Asia. The largest of all, the American fisher marten, furriers call the Virginian polecat.

Martha A sister of Lazarus and Mary, at whose village home in Bethany, near Jerusalem, Jesus was an honoured guest (Lk. x., Jn. xi.-xii.). Our Lord gently reproved the anxious spirit, in contrast with her sister's, in which she discharged her household obligations. She is habitually cited as the exemplar of the practical housewife.

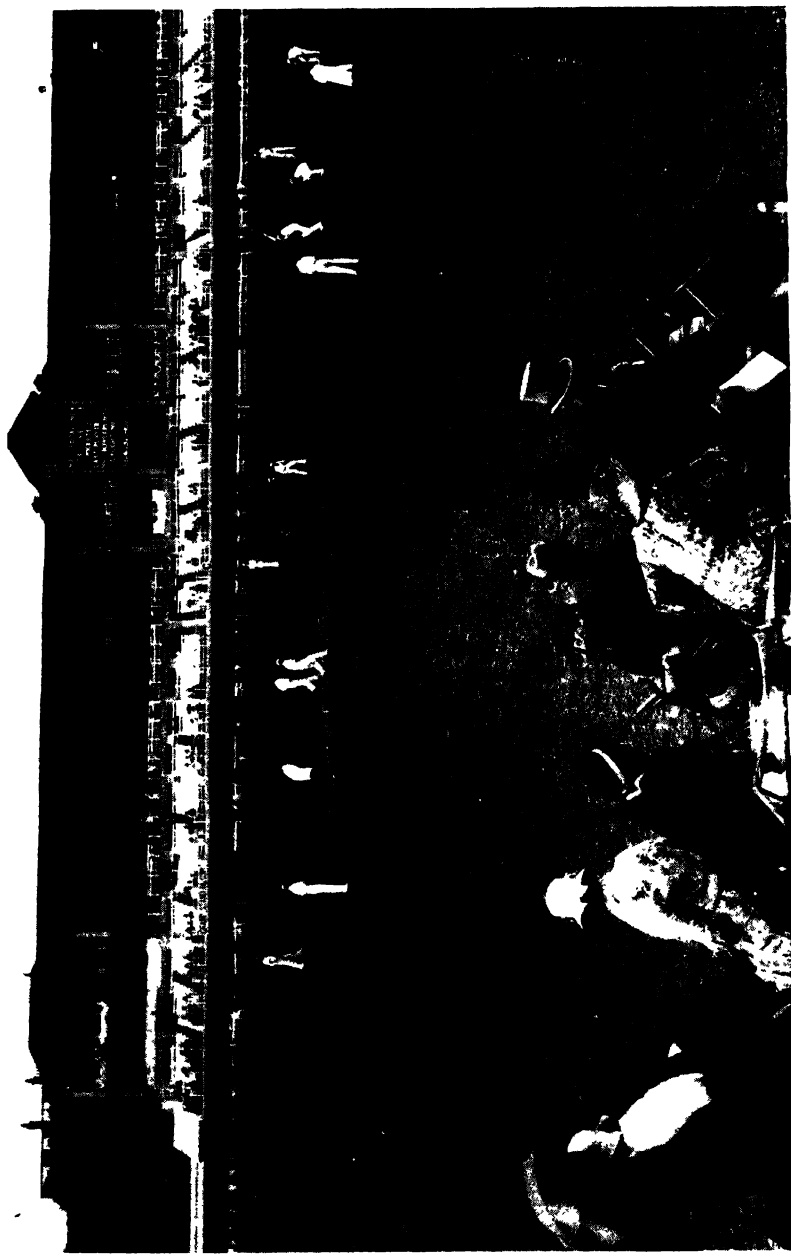
Martial Roman epigrammatist. His full name was Marcus Valerius Martialis, and he was born in Spain about A.D. 43, but after 66 passed much of his life in Rome. He died in Spain about 104. Martial is famous for the wit and polish of his unrivalled epigrams.

Martial Law Law administered by the military authorities in times of danger or disorder. When it is proclaimed, the civil law is superseded by the rule of the soldiers who have extensive powers of arresting and punishing offenders against the peace. For many years there has been no necessity to place Great Britain under martial law, but in 1920 and 1921 parts of Ireland were under it. It was proclaimed in Spain during the troubles of 1930 and 1931 and there have been other cases of its use in Europe since the Great War, for instance in Prussia in 1933.

Martin Name of various porching birds of the swallow family. Two, breeding in Britain, spend the northern winter in S. Africa. The black and white house martin, *Chelidon urbica*, 5½ in. long, makes rough mud-built, swallow-like nests. The lighter-hued sand martin, *Cottile riparia*, 4½ in. long, forms nesting colonies in sandstone cliffs. Purple martins are American.

Martin French saint and bishop. The son of a Roman soldier, he was born about 316 and became a soldier. About 360 he founded a monastery near Poitiers and won a great reputation by his piety and learning. He was Bishop of Tours from 371 till his death in 400. His day is Nov. 11.

Martin Name of five Popes. Martin I. was Pope from 649 to 654. He was then deprived of his office and sent into exile. He died Sept. 16, 655, and was later regarded as a saint. Martin II. was Pope, 882-84, and Martin III., 942-46. Martin IV., a Frenchman, was Pope, 1281-85, having previously played an important part in state



LORD'S.—The Eton and Harrow match in progress on the most famous cricket ground in the world—the home of the M.C.C. in St. John's Wood, London, and the mecca of every cricketer. [Sport & General

affairs in France. **Martin V.** was Pope, 1417-31. He was elected to put an end to the great schism in the church at the Council of Constance. He restored the power of the Papacy, and died in Rome, Feb. 20, 1431.

Martineau Harriet. English writer. A sister of James Martineau, she was born in Norwich, June 12, 1802. In 1832 she published her popular *Illustrations of Political Economy*. She also wrote a novel, *Deerbrook, Society in America and Eastern Life*. Her other works include *A History of the Thirty Years' Peace*, translations of Comte, and an autobiography. An invalid for much of her life, an agnostic, and in politics a philosophic radical, she died June 27, 1876.

Martineau James. English theologian. A member of a Huguenot family, he was born in Norwich, April 21, 1805, and entered the Unitarian ministry. In 1840 began his long connection with Manchester New College, London. He was professor there from 1841 to 1869, and principal from 1869 to 1885. He was also minister of a chapel in Little Portland Street, London, 1860-73. He died in London, Jan. 11, 1900.

Martineau won fame as a preacher and teacher, but especially as a philosopher. His most important book is *The Seat of Authority of Religion*, 1890.

Martin-Harvey Sir John. English actor-manager. He was born at Wyvenhoe in Essex in June 22, 1867. Educated at King's College School, London, and intended for a naval architect, he later studied for the stage and made his first appearance in 1887 at the Court Theatre. He was with Henry Irving's company for 14 years. In 1897 he began work under his own management, and was knighted in 1921.

He has played in Shakespeare, *The Only Way* (achieving remarkable success in the character part of Sydney Carton), *The Corsican Brothers*, *Pelleas and Melisande*, *The Cigarette Maker's Romance*, *The King's Messenger*, etc.

Martini Friedrich. Austrian soldier and inventor. Born in Hungary in 1832, he became an officer in the Austrian army, served in the engineers, and later practised as a civil engineer in Switzerland. He invented a rifle taken up by the British Government and called the Martini-Henry. In this he applied a breech mechanism to the rifle of Henry. Martini who was also a poet, died in 1897.

Martinique Island of the West Indies. It is situated between Dominica and Santa Lucia and belongs to France. Its area is 385 sq. m. A mountainous and volcanic region, it yet contains much fertile soil, whereon sugar, tobacco and coffee are grown. Rum is produced and exported. There are extensive forest areas. Fort de France is the capital and chief seaport. St. Pierre, the old capital, was destroyed in 1902 by an earthquake. The island is under a governor, a privy council, and an elected council. Pop. 238,000.

Martinmas Festival of St. Martin. It is on Nov. 11, and was an important date in the Middle Ages. On it fairs were held and oxen killed for food during the winter. It is still a queer day in Scotland, and if a period of mild weather occurs about this time it is called St. Martin's summer.

Martyr Term denoting a witness, especially one who willingly suffers death rather than surrender his religious faith. The first Christian martyr was the deacon Stephen (Acts vii.). Under the Roman

Empire many Christian confessors suffered persecutions and, if to the death, were remembered as saints and martyrs. Saint Alban, said to have suffered death at Verulam during the Diocletian persecutions, A.D. 303, giving his name to St. Albans, Herts, is honoured as Britain's protomartyr. Martyrdoms occurred in the mediæval church down to the 16th century. Others have attended missionary enterprises in heathen lands. Both Roman Catholics and Protestants have their martyrs, the latter the subject of a once popular work, Foxe's *Book of Martyrs*.

Marvell Andrew. English poet. He was born at Winestead, Yorkshire, March 31, 1621, and educated at Hull and Trinity College, Cambridge. He was a great friend and colleague of Milton, whom he helped in his blindness. He died in London, Aug. 16, 1678. His "Thoughts in a Garden" gained for him the title of "The Garden Poet." He is also remembered for his "Bermudas," "Ode to Cromwell," and the verses "To His Coy Mistress." He wrote many satires in verse, the popular nursery rhyme "Mary has a Little Lamb," and some vigorous pamphlets.

Marwick Head Promontory of Mainland, one of the Orkney Islands. Near here Earl Kitchener was drowned in the *Hampshire* in 1916, and a memorial tower has been erected on the headland. It was unveiled in 1925.

Marx Heinrich Karl. German economist. Born at Trier, May 5, 1818, he was a Jew and was educated at the Universities of Bonn and Berlin. He became a journalist, but his advanced views led to his expulsion from Germany and then from Paris, where he lived in 1843-44. He was again in Germany in 1848, but after the failure of the rising of that year, he went to London. There he lived until his death, March 14, 1883.

Marx exercised an enormous influence on the Socialist and Communist movements, and his doctrines are still accepted by a large number of their adherents. In 1847, at Brussels, he and Frederick Engels issued the manifesto which states the aims of the Communists. These views are more fully developed in his book, *Capital*, published in 1867. Shortly, his ideas are that all wealth is produced by labour and should go to labour and that, as this leaves nothing for the capitalist, who can therefore never accept the system, the workers must prepare for a class war in which capitalism will be destroyed.

Mary Mother of Jesus. She was sister of Mary, wife of Cleophas, and cousin of Elizabeth, John the Baptist's mother. Mary brought her twelve-year old son to Jerusalem for the Passover, attended the marriage feast in Cana, was committed by our Lord to John's care at the Crucifixion, and traditionally died at Jerusalem. She is the Madonna of Christian art.

Mary Queen of George V. She was born at Kensington Palace, May 26, 1867, the only daughter of the Duke and Duchess of Teck. Through her mother, a daughter of the Duke of Cambridge, she was descended from George III., and was thus a second cousin of her future husband. She was named Victoria Mary Augusta Louise Olga Pauline Claudine Agnes. The Princess Mary, as she was called, was educated at home, White Lodge, Richmond Park, and passed some three years in Italy. In 1891 she was betrothed to Albert Victor, Duke of Clarence. He died early in

1892, and in May, 1893 the princess was betrothed to George, Duke of York. On July 6, 1893, they were married in London.

In 1901 after long tours abroad, they became Prince and Princess of Wales and visited Australia, on their return taking a leading place in social life in England. In 1910 George became king and on June 22, 1911, they were crowned in Westminster Abbey. During the period of the war, and after, Queen Mary filled with great dignity, constant industry and unflinching courtesy the high position of first lady of the land. Her solicitude for the troops was notable. During the King's illness in 1928-29 she acted as President of the Council of State. Of their six children, the youngest, John, died in 1919. The others are the Prince of Wales, the Dukes of York and Gloucester, Prince George and Mary, Princess Royal.

Mary I. Queen of England. Daughter of Henry VIII. and Catherine of Aragon, she was born at Greenwich, Feb. 18, 1516, and carefully educated in the Roman Catholic faith. She lived a retired life, chiefly in Hertfordshire, until she was 37.

In July, 1553, her half-brother, Edward VI., died. The plan to make Lady Jane Grey his successor failed and Mary was proclaimed queen. In 1554 she married Philip II., King of Spain, but the union was unhappy. The queen, who had no children, died Nov. 17, 1558. Mary's short reign was marked by the restoration of the Roman Catholic religion in England, and the persecution of the Protestants.

Mary II. Queen of England. A daughter of James, Duke of York, afterwards James II., and his first wife, Anne Hyde, she was born in London, April 30, 1662. In 1677 she married William, Prince of Orange, and for the next ten years lived in the Netherlands. In 1688 William was invited to take the British throne, and after James II. had fled he and his wife became joint rulers of Great Britain. Mary was responsible for managing the affairs of state during her husband's frequent absences. She died of smallpox, Dec. 28, 1694, and was buried in Westminster Abbey. She had no children.

Mary Princess of Great Britain. She was born at Sandringham, April 25, 1897, the third child and only daughter of King George and Queen Mary, her full name being Victoria Alexandra Alice Mary. She was educated at home and went through a course of study in a children's hospital in London. On Feb. 28, 1922, the princess married Viscount Lascelles who in 1929 became Earl of Harewood. They have two sons. The elder, born Feb. 7, 1923, is George Henry Hubert, Viscount Lascelles, and the younger, born Aug. 21, 1924, Hon. Gerald David Lascelles.

The princess has many social and philanthropic interests both in London and Yorkshire where is her country home. One of these is the presidency of the Girl Guides Association. In 1932 she was created Princess Royal.

Mary Queen of Scots. Born in 1542, daughter of James V. of Scotland and Mary of Lorraine, Mary became Queen of Scots when only a week old owing to the death of her father at the battle of Solway Moss. She became also Queen of France by her marriage to Francis II. and was heiress to the English throne as next of kin to Elizabeth Tudor.

She greatly impressed the French court by her gaiety and beauty. On the death of her husband she returned in 1560 to Scotland.

A staunch Catholic she was opposed to the Calvinistic Protestant movement which had made headway through the teaching of John Knox. She married her cousin, Lord Darnley, who, jealous of her Italian secretary, Rizzio, had him murdered in the Queen's presence, and was himself murdered soon afterwards. Mary then married Lord Bothwell, which caused an insurrection among the nobles. They imprisoned her in Loch Leven Castle, from which she escaped and fled to England.

Elizabeth kept her imprisoned for nineteen years. Her presence in England led to a series of Catholic plots in her favour against Elizabeth. In 1586 Mary was accused of complicity in Babington's plot, mainly on the evidence of the Casket Letters (*q.v.*). She was executed on a charge of high treason at Fotheringhay on Feb. 8, 1587.

Maryborough Market town of Leix (formerly Queen's County), Irish Free State, also the county town. It is 51 m. from Dublin on the G.S. Itlys. There is a trade in agricultural produce. The town was named after Mary Tudor.

Maryborough Town of Victoria, Australia. It is 118 m. from Melbourne with which it is connected by railway. Here are railway shops, and gold is mined in the neighbourhood. Pop. 5800.

Maryborough Town and port of Queensland, Australia. It is on the River Mary, 20 m. from its mouth and 167 m. north of Brisbane, on the railway line from Brisbane to Rockhampton. It is the trading centre for a district; gold and coal are mined and sugar is grown. Pop. 9400.

Maryland State of the United States. With a coastline on the Atlantic, it is bounded on the N. by Pennsylvania, on the E. by Delaware, and on the S. and W. by Virginia. Chesapeake Bay divides it into two parts. Its land area is 9940 sq. m.; it is hilly in the west, but flat in the east. Annapolis is the capital, but Baltimore is the largest city. Wheat, maize and tobacco are grown; mining and fishing are other industries. The state is governed by a general assembly of two houses; it sends two senators and six representatives to Congress. Maryland was founded in 1634 and named after Henrietta Maria. It was one of the 13 original states. Pop. (1930) 1,631,526.

Marylebone Borough of the county of London. It lies between Oxford Street and Hampstead, with Paddington on the west. In it are the districts of St. John's Wood and most of Regent's Park, Cavendish and Portman Squares, Harley Street and Wimpole Street, as well as the railway stations of Marylebone and Baker Street. Here, too, are Lord's Cricket Ground, Bedford College, Queen's Hall and Madame Tussaud's. The full name of the borough is St. Marylebone, or St. Marys on the brook, the brook being the Tyburn. Much of the land forms the Portland estate, now the property of Lord Howard de Walden. The buildings include a fine parish church. Pop. (1931) 97,620.

Marylebone Cricket Club Cricket club, regarded as the governing body of the game. It is popularly known as the M.C.C., and its headquarters are at Lord's Cricket Ground, St. John's Wood, London. Its committee is responsible for any alteration

in the laws of the game, which must be approved by a two-thirds majority of the members. The club dates from 1787, and its first home was in Dorset Square. Each year a prominent public man, usually an old cricketer, is elected as president.

Mary Magdalene Woman of Magdala or Magadan, near the Sea of Galilee, mentioned in the New Testament as a devoted follower of Jesus. Seven demons were cast out of her, she witnessed the Crucifixion, found the empty tomb, and first saw the risen Lord. Incorrectly identified in the early Western Church with the unnamed penitent who anointed Christ's feet in Simon's house, the word magdalene came to designate fallen women in general; emotional tearfulness is similarly called maudlin.

Maryport Urban district, seaport and market town of Cumberland. It is 28 m. from Carlisle, on the L.M.S. Rly. The chief industry is shipping, for which there are good docks. The old name of the place was Ellenport. It was named Maryport when the harbour was built in 1750, because in 1668 Mary Queen of Scots landed here on her escape from Scotland. The Romans built a fort here. Pop. (1931) 10,182.

Masaccio Italian painter. Born near Florence, Dec. 21, 1401; his name was Tommaso Guidi. Masaccio is a nickname meaning slovenly Tom. There are some notable frescoes by him in Florence and he is represented in the National Gallery, London.

Masai People of Hamitic-negro stock in E. equatorial Africa. Tall, slendery, thin-lipped, chocolate-coloured, with Caucasoid nose, they speak a Nilotic language. Of warlike disposition, they long dominated a mountainous region in Kenya and Tanganyika formerly called Masai-land, habitually attacking caravans and expeditions. Now under British control, partly in the vicinity of Mt. Kilima-Njaro, partly in Kenya, they number 40,000 nomadic herdsmen, tending 750,000 cattle.

Masaryk Thomas Garrigue. President of the Czechoslovak Republic. Born March 7, 1850, in Moravia, a coachman's son, he was first a blacksmith. After study at Vienna and Leipzig Universities he took to teaching and at 29 became lecturer on philosophy and professor at Prague. He was a member of the Austrian parliament, 1891-93. Re-elected in 1907 he opposed the encroachment of Germany on Austria and the aggressive policy of Austria in the Balkans. While lecturing at King's College, London, during the War, he organised the Czechoslovakian Movement for Independence. He is the author of *The New Europe*, 1918, and *The Making of a State*, 1925. He was made President of Czechoslovakia in 1918, re-elected in 1920 and again in 1927.

Mascagni Pietro. Italian composer and conductor, born on December 7, 1863, at Loghorn. After some public success he entered Milan Conservatoire, abandoning it to learn by experience in an operatic company. His opera, *Cavalleria Rusticana*, 1890, made him world famous. His later works include, *L'Amico Fritz*, *Iris* and a *Rapsodia Salmica*, an experiment in film opera.

Masefield John Edward. English poet. Born at Ledbury, June 1, 1878, the son of a solicitor, he was educated at King's School, Warwick, and trained as

a seaman. After a voyage to Chile as an apprentice he became an officer in the merchant service. He left the sea after a few years and spent some time in New York before returning to England. In 1902 he published *Salt Water Ballads*, and in 1911, *The Everlasting Mercy*. Henceforward he took high rank among the poets of the day. Other notable poems include, *The Widow in the Bye Street* and *The Daffodil Fields*. In 1930 he was appointed poet laureate.

Masefield has also written dramas and a good deal of prose. His dramas include *Pompey the Great*, *The Faithful, Good Friday*, *The Trial of Jesus* and *The Coming of Christ*. Among his novels are *Captain Margaret*, *Multitude* and *Solitude*, *Sard Harker*, and *The Hawkshuts*. Other books are *The Old Front Line* and *Ballpools* (dealing with the World War) and a study of Shakespeare. He also edited *The Voyages of Captain William Dampier*. At his home at Boar's Hill, near Oxford, he constructed a private theatre.

Masham Market town and urban district of Yorkshire (N.R.). It is 8 m. from Ripon on the River Ure, and is reached by the L.N.E. Rly. There is an agricultural trade, and brewing is another industry. A lamb fair is held in September. Pop. (1931) 1995.

The title of Baron Masham was given in 1891 to Samuel Cunliffe Lister, the owner of great textile mills at Manningham, Bradford. He died Feb. 2, 1906. The title passed in turn to his two sons, but became extinct when the younger died in 1924.

Mashonaland District of South Africa. Granted to the British South Africa Company in 1889, it now part of Southern Rhodesia (q.v.). It is the eastern part of the country and is named after the Mashonas, a Bantu tribe, who live in the region.

Mask Lough or lake of Ireland. It is on the borders of counties Galway and Mayo, and is about 12 m. long, covering some 30 sq. m. In it are many islands.

Maskelyne John Nevil. English entertainer. Born at Cheltenham, Dec. 22, 1839, he became a public entertainer. With a partner he founded in 1865 the firm of Maskelyne and Cooke, and his reputation was increased when he exposed the tricks of some spiritualists. In 1873 the firm moved to London, its first home being the Egyptian Hall, Piccadilly.

Maskelyne had an extraordinary genius for staging optical and other illusions and the secret of some of them baffled all enquirers. In 1905 the firm moved to St. George's Hall, Regent Street. It became Maskelyne and Devant, but after the retirement of David Devant was carried on by Maskelyne's grandson and known simply as Maskelyne's. John Maskelyne died May 18, 1917.

Mason One who cuts, dresses and sets building stones and similar material. The term monumental mason is applied to one who works in stone for memorials, etc.

The trade is represented by the **Masons' Company**, one of the smaller of the London Livery Companies.

Masons' marks used in medieval buildings were devices cut in the stones to identify the responsible mason.

Mason Alfred Edward Woodley. English novelist. Born May 7, 1865, he was educated at Dulwich College and

Trinity College, Oxford. After a spell of secretarial work he began to write, and in 1895 *A Romance of Wasdale* appeared. In 1898 he scored a success with *The Courtship of Mr. and Mrs. Buckler*, the first of a number of novels in the romantic style in which historical incidents were sometimes used. Perhaps the best are *Miranda of the Balcony*, *Clementina*, *The Broken Road*, *The Four Feathers*, and *Running Water*. He also wrote two excellent detective stories, *At the Villa Rose* and *The Prisoner in the Opal*. These have been dramatised, as have several of his novels. His play, *The Witness for the Defence*, was afterwards made into a novel. His later works include *The Winding Stair*, *The House of the Arrow*, *No Other Tiger*, and *The Dean's Elbow*. From 1906-10 Mason was Liberal M.P. for Coventry and during the Great War he served with the Manchester Regiment on the staff.

Mason, Sir Josiah. English philanthropist. Born at Kidderminster, Feb. 23, 1795, of humble parentage, he settled in Birmingham and in 1825 began to manufacture hardware. He made a speciality of pen nibs in which he built up an enormous business, and he was also a pioneer in the electro-plating industry. Knighted in 1879, he died June 16, 1881. Mason was the founder of Mason College at Birmingham which was the nucleus of the great university there. He also founded an orphanage at Erdington.

Masonry Art or trade of building with stone, concrete blocks or similar material. The blocks are roughly shaped in the quarry (quarry-facod), or hammered to give a flat surface and straight edges (pitch-facod), and finally dressed or accurately finished. Rubble masonry is where rough blocks are built up with or without mortar, and ashlar masonry where the dressed blocks are carefully set with thin joints of mortar.

Maspero, Sir Gaston Camille Charles. French Egyptologist. Born at Paris, June 23, 1846, in 1871 he became Professor of Egyptology at the Collège de France. He was for many years the keeper and director of the museum at Bulak, and carried out notable excavations at Memphis, Carnac, Sakkarah, etc. He was the author of several works on the history of Egypt. He was awarded the K.C.M.G. in 1909, and died in Paris, June 30, 1916.

Masque Word used for an occasional entertainment combining drama, songs, dances and spectacles, the whole embodying an allegory. Masques were fashionable in England in early Stuart times, the Inns of Court staging many. Ben Jonson, Milton (whose *Comus* is the classic example), and Campion wrote masques.

Masquerade Revel in which the participants disguise themselves with quaint clothing and wear a mask over the eyes. From the early thirteenth century it was popular in England with all classes, particularly in the reigns of Edward III. and the Stuarts. It survives, modified, in fancy dress carnivals.

Mass Name used for the celebration of the Holy Eucharist according to the rites of the Roman Catholic Church. It is a commemoration of the Passion, a propitiatory sacrifice, a service of praise and thanksgiving and a means of grace to all its participants and celebrants. A high mass is sung and solemnised with incense. A low mass is said. A requiem mass is one for the dead.

Massachusetts State of the United States. In the N.E., it is one of the original New England states. It has a coastline on the Atlantic, and an area of 8266 sq. m. Boston is the capital and the largest town; other populous centres are Worcester, Springfield, Fall River, Cambridge and New Bedford. It is governed by a legislature of two houses and sends two senators and 16 representatives to Congress. Massachusetts was founded in 1620 when the Pilgrim Fathers made their first permanent settlement here. Massachusetts Bay is a broad inlet in the coast, Harvard University is one of many educational institutions in the state. Pop. (1930) 4,249, 614.

Massage System of treating complaints by rubbing and similar manual movements. It is efficacious for rheumatism, sciatica, arthritis and kindred ailments. It is also used for sprains and other injuries, and to soothe nervous and sleepless persons. It was practised by the Chinese and other peoples in ancient times, and was brought into England in the 18th century. It was developed in the 19th, largely by the Swedes, and became a recognised method of treating affections of the joints. The chief English centre for the training of masseurs is the National Hospital, Queen's Square, London, E.C. Those entering the profession usually secure a certificate, given after examination by the Chartered Society of Massage and Medical Gymnastics, Tavistock Square, London, W.C.1.

Masséna, André. French soldier. Born at Nice, May 6, 1758, he is considered to have been Napoleon's greatest general. He served in the Sardinian and French armies and distinguished himself at the battles of Rivoli, Zurich, the siege of Genoa, Essling and Wagram. Made a marshal in 1804, in 1810 he fought against Wellington in Spain (Torres Vedras), and was created Duke of Rivoli and Prince of Essling. At the Restoration he supported the Bourbons. He died April 4, 1817, leaving seven volumes of memoirs which were published in 1849-50.

Massey, William Ferguson. New Zealand statesman. Born at Linnavady, Ireland, March 26, 1856, he went to New Zealand in 1870 and became a farmer. In 1894 he entered parliament and in 1903 became leader of the Conservative opposition. In 1912 he became prime minister, and his character and ability enabled him to lead New Zealand with success throughout the World War. A member of the Imperial War Cabinet in 1917-1918 he represented his country at the Peace Conference in Paris, 1919, and attended the Imperial Conference in London in 1921. He was defeated at the general election in 1922 and died May 10, 1925.

Massillon, Jean Baptiste. French divine. Born at Hyères, June 24, 1663, he became a priest. In 1717 he was made Bishop of Clermont, and delivered memorable sermons before the king and court in Paris. One of his greatest efforts was his funeral oration over Louis XIV. He died Sept. 18, 1742.

Massinger, Philip. English dramatist. Born in Nov., 1583, at Salisbury, he was educated at Oxford. Of his many plays 15 remain, including, *A New Way to Pay Old Debts*, *The Maid of Honour*, and *The Bashful Lover*. Massinger died in March, 1640, and is buried in St. Saviour's, Southwark.

Massingham **Henry William.** English journalist. Born at Norwich in 1860, he was educated at the grammar school there. After experience in a newspaper office in Norwich, he settled in London and became editor of *The Star*. As editor of *The Daily Chronicle*, 1895-99 he was a great success until his views on the war against the Boers led to his retirement. He served as London editor of *The Manchester Guardian*, worked for *The Daily News*, and then edited *The Nation* from 1907 till 1921. He died Aug. 27, 1924. Massingham was a great journalist, one who took his calling very seriously. Everything he wrote was charged with his own individuality and was worth reading, although he managed frequently to find a point of view that was antagonistic to the general feeling of his countrymen.

Mast Straight, upright spar of timber or hollow metal. Secured to a sailing vessel's keel, it supports the deck yards, sails and rigging. Originally a single pole, it became a compound or made mast, distinguished from the deck upwards as lower-mast, top-mast, top-gallant mast and top-gallant royal. There are fore, main and mizzen masts and even more. A jury mast is an emergency spar. Masts also serve for supporting cables, aerials, overhead trolleys and airship-moorings.

Master of the Horse Official in the royal household. He looks after the stables and kennels and ranks as the third official of the court. Before the Great War the office was a political one and its holder was changed whenever there was a new government.

Master of the Rolls Judge of the High Court of Justice. He appeared in the 15th century as the Keeper of the State Rolls. Later he became judge of the Court of Chancery, and later still the president of the Court of Appeal. He is usually made a peer on appointment and ranks third in the judicial hierarchy. He is the head of the public record office and chairman of the Historical Manuscripts Commission.

Masterton Town of New Zealand. In North Island, it is 66 m. from Wellington with which it is connected by railway. It is the centre of a large sheep-rearing district. The town was damaged by the earthquake of Feb. 1931. Pop. 5000.

Mastic Gum resin obtained from incisions in the bark of a small tree, *pistacia lentiscus*, common in southern Europe. It forms yellow irregular brittle "tears" having a faint aromatic odour. Becoming plastic when heated, it is used as a tooth stopping and for making a colourless varnish for paper.

Mastiff Breed of dog. It is powerful, round-muzzled, short-coated, small-eyed, and thin-tailed, with pendulous upper lips. Brindled or fawn-coloured, it has ears and muzzle of black. The old English strain, bred for sporting purposes in Tudor times, is now used as a watchdog. The modern mastiff is 29 ins. high, with pendent ears.

Mastodon Extinct mammal of the elephant family, closely allied to the mammoth. It had conical tubercles on its molars, and in some forms tusks were present in both upper and lower jaws. The mastodon was covered with thick woolly hair, and it existed from the Miocene age to the Pleistocene in Europe and North America.

Mastoid Name of a part of the temporal bone in the skull. It is situated immediately behind the ear and contains a number of hollow cells or cavities.

Mastoiditis is a disease of the mastoid bone and is due to suppuration of the ear. It shows itself in pains and tenderness in the affected part, in irregular temperature, especially at night, headache and perhaps giddiness and sickness. There is also a visible discharge from the ear and in the young the neck is usually stiff. There may be a degree of deafness. An operation is usually the only cure.

Matabeleland District of S. Africa. It lies between the Transvaal and Mashonaland. It was granted to the British South Africa Company in 1889, and since then has been part of Rhodesia.

The name is that of the Matabele, a Bantu tribe living in the region. In 1893 the Matabele attacked the Mashonas in Mashonaland, but were defeated by troops sent by the British South Africa Company, which seized their capital, Bulawayo. In March, 1896, they again rose in rebellion, but peace was soon made, the tribe submitting to British rule.

Matador Name in Spanish bull fighting for the chief bull fighter, who is appointed to kill the bull: also one of the three principal cards in ombre and quadrille.

Match Splinter of wood usually aspen or white pine, waxed thread or cardboard, tipped with an inflammable substance which is ignited by friction. The earliest matches were tipped with chlorate of potash and sugar and ignited by dipping in strong sulphuric acid. This type was superseded by friction matches and about 1836 phosphorus came into use. The modern friction matches are tipped with phosphorus sesquisulphide or similar substances. In safety matches the phosphorus is on the box, and the match tip is coated with an oxidising mixture.

Matchlock Form of musket used in England from the 15th to the end of the 17th century, when it was superseded by the flintlock. It was fired by means of a lighted match applied to the touchhole by a cock or lever, released on pressing the trigger.

Maté Roasted and powdered leaves of an evergreen shrub of the holly order, growing wild in Paraguay and S.E. Brazil, and cultivated in plantations (*Ilex paraguayensis*). An aromatic and bitter tea-like infusion, made with boiling water and sweetened with sugar in a cup or calabash, is sucked through a cane or silver tube. See ILEX.

Materialism Theory according to which the ultimate reality in the universe is matter. It is thus the opposite of idealism and is usually regarded as antagonistic to all religious systems. It was taught among the Greeks and has had powerful advocates in modern times. In a more general way, it refers to the belief that there is no future life, and to the tendency to make the fullest use of the opportunities of the present life without regard to the possibility of any other.

Mathematics Term usually applied to the science of numbers and space and the relations between these. A wider and more modern definition is "the science concerned with the logical deduction of consequences from the general

principles of reasoning" (Russel). Mathematics is divided into pure and applied, the former including arithmetic, algebra, theories of numbers, etc. Geometry, both pure and descriptive, also come under this head. Applied mathematics includes mechanics, physical science, geophysics and astrophysics, geodesy, etc. The study of mathematics goes back to early Greek times, and in Egypt the famous Rhind papyrus is mathematical in nature and believed to be a copy of a still earlier document.

Mather Cotton. American Puritan. He was born at Boston, Massachusetts, Feb. 12, 1663, a son of Increase Mather (1639-1723), a Puritan preacher, and in 1684 became assistant to his father. He remained in Boston preaching or writing until his death, Feb. 13, 1728. Mather was also known as a linguist and published an enormous number of books. Among them are his *Ecclesiastical History of New England* in seven volumes, and a book on witchcraft.

Matilda Name of two English queens. Matilda, or Maud, was the daughter of Henry I. She was born in 1102 and, on the death of her brothers, became heiress to the English throne. When Henry died, however, in 1135 his nephew, Stephen, seized the throne, Matilda being then in France. In 1141 she defeated Stephen at Lincoln and was crowned queen. The civil war continued until 1153 when peace was made and Matilda's son, afterwards Henry II., was recognised as her heir. Matilda died Sept. 10, 1167.

The other Matilda was the wife of William the Conqueror. She was a daughter of Baldwin, Count of Flanders, and was descended from Alfred the Great. She married William in 1068, and was crowned queen of England in 1068. She died Nov. 3, 1083, and was buried at Caen.

Matisse Henri. French artist. Born Dec. 31, 1860, he studied in Paris and his work soon attracted attention. He was one of the original Fauvists and his style is noted for its simplicity, its rather violent colouring and its vigorous calligraphic manner of brushwork. With Picasso he came to be acknowledged as the leader of the more mature art movement of Paris. Matisse, who lived for a time in Morocco, is represented in several European galleries and among his pictures are "Toilet" and "The Sisters."

Matlocks The. Urban district and inland watering place of Derbyshire. It consists of Matlock Bridge, Matlock Bath and Matlock Bank, which until 1927 were separate areas. It stands on the Derwent, and is served by the L.M.S. Rly.; is 145 m. from London and 17 from Derby. There are some industries, but the place is chiefly a pleasure and health resort. There are medicinal springs at Matlock Bath. Near Matlock is some of the most beautiful of the Derbyshire scenery, including the High Tor and the Heights of Abraham. Matlock Bath is famous for its caves and its petrifying wells. Pop. (1931) 10,599.

Matoppos Hills Range of hills in Rhodesia. The district lies to the east of Bulawayo and covers about 1000 sq. m. On one of the hills called the World's View is the grave of Cecil Rhodes, a national cemetery and a national park.

Matriarchy Form of social organisation determining per-

sonal rights and obligations from the maternal side. It may govern descent and inheritance, require the husband to live, temporarily or permanently, with the wife's social group, or control the children through the mother or her male relations. All these conditions, exemplified in some American Indian tribes, collectively constitute mother-right.

Matriculation Act of admitting a student to membership of a university. Before doing this the universities require the student to pass an examination, exemption from which is granted to those who have passed an examination of the same standard at school. The matriculation examination of London university is a popular educational test. The universities of Manchester, Liverpool, Leeds and Sheffield combine to have a joint examination.

Matrix In mineralogy and mining a term applied to the earthy or stony matter in which a metallic ore is embedded. Often the presence of certain minerals serves as a guide to the occurrence of particular metals.

The term is used also for the mould in typesetting machines from which a letter is cast. Some machines use the individual matrix, others, a row giving a line of type. The term is also applied to the papier-mâché impression used to cast a page of type in stereotyping.

Matron Roman word for a married woman, especially one of high character. It is now used for the woman who is at the head of a workhouse, hospital or orphanage, or looks after the health, food and clothing of the pupils in a school. A jury of matrons is a jury summoned in case a woman who is sentenced to death pleads that she is pregnant. Their business is to decide if this is true or false; if the former, the sentence of death is deferred or annulled.

Matsys Quentin. Flemish painter. Born at Louvain in 1466, Matsys (or Massys) was at first a blacksmith but took up painting and became one of the great artists of his time. His early work is seen in the "Virgin and Child" in the Brussels Gallery and the "Madonna" in the National Gallery, London, but his most famous work is the triptych, "Pieta," now in Antwerp Museum. His paintings show great technical skill, delicacy of touch and religious feeling. He died at Antwerp in 1530.

Matte Term used in metallurgy for the fusible mass of mixed sulphides resulting from the calcination of copper ores, an alternative term being regulus. By this method, adopted for oxides, carbonates and siliceous ores, the metal is concentrated in the matte, which usually contains from 25 to 55 per cent.

Matter Term in physics applied to the substance composing the universe and of which we are cognisant by means of our senses. Matter exists in three states, solid, liquid and gaseous, these states differing from one another in the degree of aggregation of the component atoms according to the conditions of temperature and pressure. According to the atomic theory, atoms are the smallest particles of matter, but are grouped together to form molecules in compounds. Recent research has shown that the atom itself is a complex structure formed of electrons and protons, the centres of radiation of waves of energy.

Matterhorn Mountain of Switzerland. With an elevation of

14,782 ft., it is situated 6 m. S.W. of Zermatt on the frontier of Switzerland and Italy. It is the end of a mountain ridge and has a less difficult slope on the Swiss side than on the Italian. It was first climbed by Whimper and his party in 1865.

Matthew Saint and apostle. A Jewish customs officer, usually identified with Levi, he became one of Christ's twelve disciples. Owing to confusion with Matthias, apocryphal legends claim his martyrdom in Ethiopia, commemorated in the Eastern on 16th Nov., and in the Roman Church 21st Sept., on which day the Anglican Church commemorates his call.

Matthew The Gospel of. First book of the New Testament, traditionally attributed to the apostle. Modern scholarship tends to hold that Matthew's personal contribution comprised certain lost memoranda or Logia which he compiled in Hebrew. A later compiler expanded them into our complete narrative, using Mark's gospel as a framework. Designed for the Jewish community, the book takes for granted the authority of the Old Testament, from which 65 citations are made, claiming our Lord's teaching as fulfilling the Mosaic law. See GOSPEL.

Maubeuge Town of France. It is on the Sambre, near the frontier of Belgium. Before the Great War it was a fortified place, but the forts were destroyed by the Germans in Aug., 1914, and the town surrendered, remaining in German possession until the end of the struggle. Pop. 20,000.

Mauchline Town of Ayrshire. It is 9 m. from Kilmarnock and is noted for its cattle and horse fairs. Burns lived near at the farm of Mossiel.

Maud Queen of Norway. The youngest daughter of King Edward VII., she was born Nov. 26, 1869. In July, 1896, she married Charles, Prince of Denmark who, in 1905, became King of Norway as Haakon VII. They have one child, a son, Prince Olaf, born July 2, 1903, who in 1929 married Princess Martha of Sweden.

Maude Cyril. English actor-manager. Born in London, April 24, 1862, and educated at Charterhouse, he began his career on the American stage in 1883. He was co-manager of the Haymarket Theatre from 1896 to 1905, and afterwards sole manager of the Playhouse (built by him) until 1915. He achieved notable successes in *Grumpy*, *Lord Richard in the Pantry* and *These Charming People*, and he is the author of *The Haymarket Theatre*, 1903, and *Behind the Scenes with Cyril Maude*, 1927. In 1888 he married Miss Winifred Emery (1862-1924).

Maude Sir Frederick Stanley. British soldier. He was born June 24, 1864, son of General Sir Frederick Maude, V.C. He served in the South African War and organised the Territorial Forces of Canada. After service in France, the Dardanelles and Egypt, he was promoted army commander in Mesopotamia and was responsible for a successful forward movement which drove the Turks from Kut. He later occupied Bagdad, and died there of cholera, Nov. 18, 1917.

Maugham William Somerset. English author and playwright. Born in 1874 and educated at King's School, Canterbury, and Heidelberg University, he adopted a medical career, gaining his M.R.C.S. and L.R.C.P., but later took to literature.

His more notable novels include *Liza of Lambeth*, 1897; *The Moon and Sixpence*, 1919; *The Painted Veil*, 1925; and *Ashenden*, 1928, which is based on his experiences in the secret service during the Great War.

His best known plays are *The Land of Promise*, 1914; *The Circle*, 1921; *East of Suez*, 1922; and *Our Betters*, 1923. The last is a brilliant satirical play of modern society, and is one of the great successes of the post-war theatre.

Maumbury Rings Spot near Dorchester. It is believed to have been in Roman times the site of an amphitheatre which held 12,000 spectators.

Mauna Loa See HAWAII.

Maundy Name meaning "command" given to the Thursday of Holy Week. It also refers to the ceremonial ablutions, gift of money and Eucharistic celebration proper to the day. Anciently the pope, royalty and nobility washed the feet of as many poor people as there were years old in fulfilment of Christ's "command" (John xiii. 34). In England the custom was abolished in 1754, but maundy money is still given to the poor on this day at Westminster Abbey, a penny for each year in the sovereign's age.

Maupassant Henri René Albert Guy de. French novelist. Born in Normandy, Aug. 5, 1850, he is considered by many as the greatest short story writer in European literature. Many of his stories are the result of his experiences as a soldier in the Franco-Prussian War. His best known books are *La Maison Tellier*, 1881; *Une Vie*, 1883; *Bel-Ami*, 1885, and *Pierre et Jean*, 1888. He became insane in 1892 and died July 6, 1893.

Maurice Sir Frederick Barton. English soldier. Born Jan. 19, 1871, eldest son of Sir J. F. Maurice, he entered the army in 1892 and saw service on the Indian frontier and in South Africa. He distinguished himself during the Great War, being knighted in 1916, but was retired for a breach of discipline in writing to the Press, challenging the accuracy of Ministerial statements concerning the strength of the army in the field in the spring of 1918.

He then became a war correspondent and, after the War, Principal of the Working Men's College, St. Paneras, in 1922. He was Professor of Military Studies at London University, 1927, and Chairman of the Adult Education Committee, 1928. He has published *Forty Days* in 1914, *Lives of Lord Wolseley*, Robert E. Lee, and Lord Rawlinson, *Governments and War*, *British Strategy*, and *The 16th Foot*.

Maurice John Frederick Denison. English theologian. Born at Normanston, Suffolk, Aug. 29, 1805, son of a Unitarian minister, he studied at Trinity College and Trinity Hall, Cambridge. Between 1840-53 he held professorships of literature and theology at King's College, London. In 1854 he helped to found and became first principal of the Working Men's College. In 1860-66 he was incumbent of Vere Street Chapel, London, and in 1866 was appointed to the Chair of Moral Philosophy at Cambridge. He died in London, April 1, 1872. A friend of Charles Kingsley, his forceful personality and sympathy with the oppressed made him a factor in the religious life of his time, and the movement known as

Christian Socialism was an outcome of his teaching.

Mauritius Island in the Indian Ocean, sometimes called the Ile de France. It is 500 m. east of Madagascar and covers 720 sq. m. The capital and chief port is Port Louis. The island is mountainous, but in the fertile valleys the sugar cane and other tropical plants grow freely. The island is a British crown colony, under a governor who is assisted by two councils. Having been a Dutch possession, Mauritius became French in 1715 and British in 1814. It was named by the Dutch after Maurice, Prince of Orange. It was the home of the dodo. In 1931 great damage was done by a hurricane. Pop. 385,000, the majority being Hindus.

Maurois André. French author. He was born in 1885, and educated at Rouen. Many of his books have been translated into English. Among them are *The Silences of Colonel Bramble*, dealing with the War, a *Life of Disraeli*, *Ariel*, an imaginative biography of Shelley, and *Don Juan*, a similar work on Lord Byron. He has written a book on Marshal Lyautey. In 1931 he lectured in London.

Mausier Rifle Type of magazine rifle invented by a German, Paul Mausier, and adopted as the standard military rifle in Germany. It has a bolt action and is characterised by its durability and accuracy of aim.

Mausoleum Large tomb or memorial. The term is derived from the tomb at Halicarnassus in Asia Minor erected to the memory of Mausolus, King of Caria in 353 B.C. by his widow, Artemisia. This highly ornate building was 140 feet in height and surmounted by colossal statuary. Portions of the sculptures are in the British Museum.

Mawson Sir Douglas. British explorer. Born at Bradford in 1882, and educated at Sydney University, he was appointed to the scientific staff of the Shackleton Antarctic Expedition in 1907. He was also on the staff of the Everest Expedition and the Magnetic Pole journey in 1908. He was leader of the Australasian Antarctic Expedition of 1911-14, when he discovered radium ore at Mount Painter, and of the British Australian and New Zealand Antarctic Expedition of 1929. Since 1920 he has been Professor of Geology and Mineralogy in Adelaide University. He was knighted in 1914 and wrote *The Home of the Blizzard*.

Max Adolphe. Belgian patriot. Born in Brussels in 1869, he entered politics in 1894, and became Burgomaster of Brussels in 1909. When the Germans entered Brussels in 1914, he demanded complete freedom of action, and formed a central committee to deal with supplies. Arrested in Sept., 1914, he was sent to Germany, but escaped in Nov., 1918, and returned to his native city.

Maxim Sir Hiram Stevens. American inventor. Born in Maine, Feb. 5, 1840, he gained early a wide experience of engineering. He made discoveries of great value in the use of steam and electricity. Having settled in England he was naturalised, and in 1901 was knighted. He died Nov. 24, 1916. Maxim's name is perpetuated by the Maxim gun; he was also a pioneer in aeronautics.

Maximilian I. Holy Roman Emperor. Son of Frederick III., born in Vienna, March 22, 1459, he married

Mary, heiress of Philip, Duke of Burgundy, and thus greatly increased the Habsburg dominions. He became Emperor in 1493. He was a patron of art and letters as well as an administrator of considerable gifts and a good soldier. Much of his reign was occupied with warfare against the French in Italy and against the Turks who were pressing up the valley of the Danube. By the marriage of his son Philip to Juana, heiress of Ferdinand and Isabella of Spain, he brought about the succession of the Habsburgs to the vast Spanish dominions, while the marriage of his grandson Ferdinand to Anna of Hungary brought in also Hungary and Bohemia. Owing to his liberality and extravagant schemes he was always in want of money, and thus failed to achieve most of his grandiose designs. He died Jan. 12, 1519.

Maximilian Emperor of Mexico. A son of Francis Charles, Archduke of Austria, he was born July 6, 1832, his elder brother being the Emperor Francis Joseph. In 1857 he was made Governor of Lombardy and Venetia, then Austrian possessions, and in 1863 accepted the throne of Mexico and was crowned in 1864. The French, who were his chief supporters, left him to struggle with his recalcitrant subjects. The result was that he was betrayed to them, and on June 19, 1867, was shot. Maximilian wrote a book translated as *Recollections of My Life*.

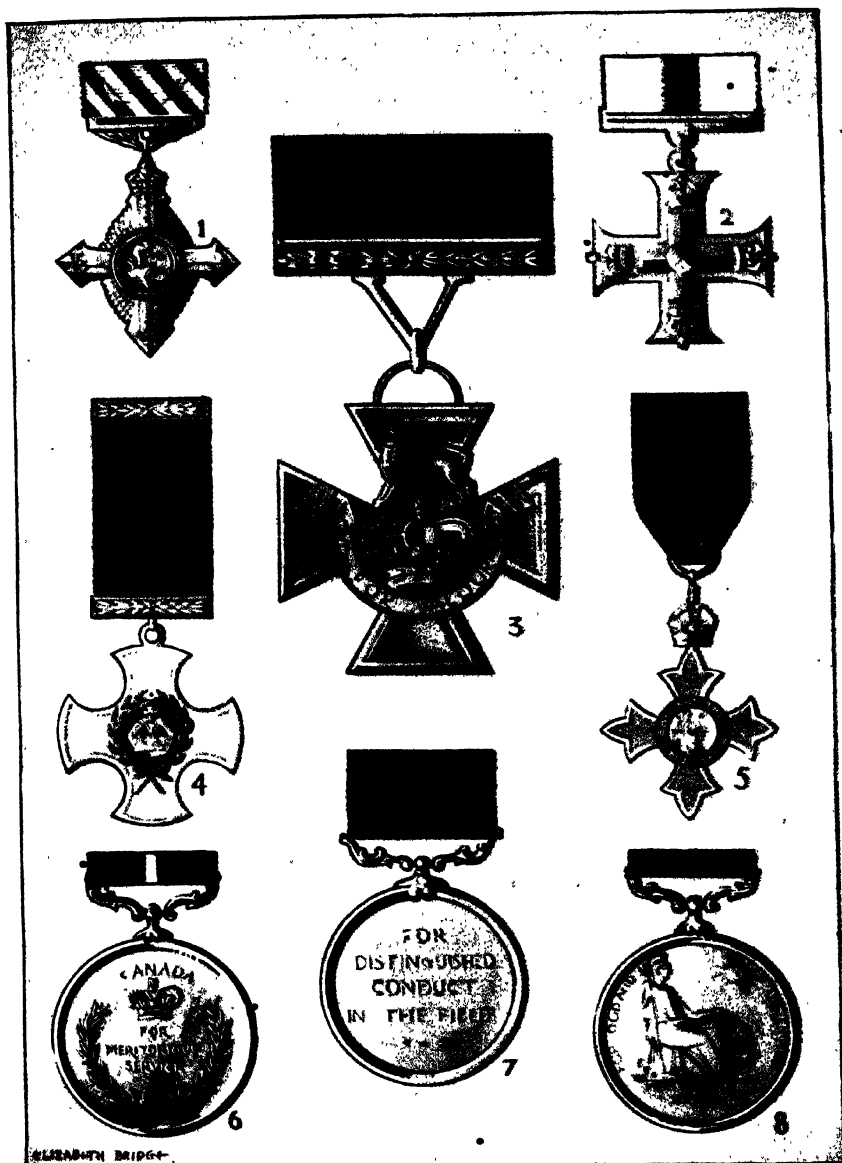
Max Müller Friedrich. German scholar. A son of Wilhelm Müller, a poet, he was born at Dessau, Dec. 6, 1823, and was educated at Leipzig and Berlin. He made a special study of philology and settled in London. In 1854 he was made Professor of Modern Languages at Oxford, and in 1866 Professor of Comparative Philology. He died at Oxford, Oct. 28, 1900. Max Müller was the foremost philologist of his day and made the results of his studies very widely known through his volume *The Science of Language*. He translated Kant's *Critique of Pure Reason* and edited the *Sacred Books of the East*.

Maxstoke Village of Warwickshire. It is 12 m. from Birmingham. Here is Maxstoke Castle, built in the 14th century, and notable for its moat, drawbridge and gatehouse. Near are the ruins of a priory.

Maxton James. Scottish politician. Born June 22, 1885, and educated at Barrhead School and Glasgow University, he became a teacher. In 1919 he was appointed organiser for the Independent Labour Party, and in 1922 was elected M.P. for Bridgeton (Glasgow), being returned at later elections. He was a leader of the advanced group who broke away from the official Labour Party in 1931.

Maxwelltown With Dumfries a burgh of Kirkcubrightshire. It stands on the Nith, on the L.M.S. Rly. It has an observatory and a museum. Three bridges connect it with Dumfries. Tweeds are manufactured. The old name of the place was Bridgend; it was renamed in 1810 after the Maxwell family.

May Phil. English artist. Born in Leeds, April 22, 1864, he became, while still a boy, a scene painter at a theatre there. By painting portraits of actors in a casual way he revealed an extraordinary genius for caricature, and later he became a popular cartoonist for the press. From 1887 to 1890 he was in Australia working for *The Sydney Bulletin*. After his return to London he worked



MEDALS AND DECORATIONS.—1. Air Force Cross. 2. Military Cross. 3. V.C. (Victoria Cross). 4. D.S.O. (Distinguished Service Order). 5. K.B.E. (Knight of the British Empire). 6. Meritorious Service Medal for Canada. 7. D.C.M. (Distinguished Conduct Medal). 8. British Empire Order Medal or O.B.E.

for *Lick Me Up, The Pall Mall Budget*, and *The Graphic*, and finally joined the staff of *Lunch*. He died in London, Aug. 5, 1903. May published *The Parson and the Painter* and edited *Phil May's Annual*.

May Sir George Ernest. English financier. Born in 1871 he became a clerk, and rose to be secretary of the Prudential Assurance Co. During the war period he assisted the Government in connection with the loans from the United States and in other ways. In 1918 he was knighted. He retired in 1930 and in 1931 was chairman of the committee that reported on the condition of the nation's finances and suggested certain economies. In 1932 he was made chairman of the board appointed to advise the government on tariffs.

Maya American Indian people in middle America. A shortish, round-headed, dark-skinned stock, they are unprogressive peasants in Yucatan, Campeche, N. Guatemala and elsewhere. The 15th century, before the Spanish advent, witnessed the collapse of an advanced Maya civilisation, distinct from the Aztec, lasting 2000 years. Marked by impressive architectural remains at Copan, Quirigua, Palenque and, in British Honduras, Lubaantun, this early Maya empire, already decadent by A.D. 600, was followed by a northward migration which ultimately produced great cities like Uxmal and Chichen Itza. A remarkable system of chronology, reaching back to the 6th century B.C., was recorded in a peculiar glyphic script, which has been only partially deciphered.

Maya or **Mahamaya**. Mother of Gautama Buddha. Legend makes her and her sister, Prajapati, the principal wives of Siddhoda, the wealthy Kshatriya landowner of a small state surrounding Kapilavastu, in S. Nepal. When 45 years old, Maya gave birth to Gautama c. 560 B.C. in a wayside grove visited 300 years afterwards by Asoka, whose commemorative pillar there was discovered in 1895.

Maybole Burgh and market town of Ayrshire. It is 9 m. from Ayr and 50 from Glasgow, on the L.M.S. Rly. The tolbooth was once a castle in which the Carricks and Kennedys lived. Pop. (1931) 4210.

May Day First day of May. In England in the Middle Ages it was a popular festival, probably a survival of a much older custom of celebrating the opening of spring.

The celebration took the form of dancing round the maypole and crowning a girl as queen of May. The ceremony is still observed in some parts of England. The day is also regarded as Labour Day and is a holiday on the Stock Exchanges.

Mayfair District of London. It lies between Piccadilly and Oxford Street with Park Lane to the west and Bond Street on the east. It is a fashionable residential district and there are many large houses in its streets and squares. It owes its name to a fair which was held here every year until 1708. Much of the land belongs to the Duke of Westminster.

Mayfield Village of Sussex. It is 11 m. from Tunbridge Wells, on the S. Rly. The place was a market town in the Middle Ages and here the Archbishop of Canterbury had a palace, of which there are slight ruins.

Mayflower Sailing vessel carrying the Pilgrim Fathers (q.v.).

about 102 men, women and children, from Plymouth, Devon, on Sept. 6, 1620. It reached Plymouth, Massachusetts, on Dec. 21. This double-decked, square-rigged brigantine was accompanied by the *Speedwell* from Southampton, on Aug. 5, but proceeded alone from Plymouth westward when the *Speedwell* proved unseaworthy.

May Fly (*Ephemera*). Family of small insects. Belonging to the order *Neurptera*, it is distinguished by having four membranous wings, rudimentary mouth parts, large compound eyes, and usually three long filaments at the end of the abdomen. The larval stage is aquatic and predaceous, and in some forms lasts for years. The imago lasts only from a few hours to a few days.

Maynooth Town of the Irish Free State. It is in Co. Kildare, 15 m. from Dublin, on the Gt. S. Rlys. The chief building is the Roman Catholic training college for priests, designed by A. W. Pugin. This was founded in 1793 and accommodates 500 men. There was once a castle at Maynooth, a stronghold of the Fitzgeralds. The splendid park of Carton, seat of the Dukes of Leinster, is near Maynooth.

Mayo County of the Irish Free State. In the province of Connaught, it covers 2158 sq. m. and has a long coastline on the Atlantic Ocean. It contains Loughs Conn, Mask and Carra, and much of it is wild and mountainous. Achill, Clare and other islands belong to it, and Clew, Blacksod and Killala Bays are openings of the sea. The Owenmore and the Moy are among the rivers. Castlebar is the county town; other places are Ballina, Killala and Westport. It is served by the Gt. S. Rlys. The soil is poor. The majority of the people live on the land and by fishing. Pop. (1926) 172,690.

Mayonnaise Salad dressing consisting of yolks of eggs beaten up raw, with olive oil and vinegar or lemon juice blended gradually till the mixture is of a creamy consistency. Any particular dish prepared with this dressing is also called Mayonnaise, as salmon mayonnaise, etc.

Mayor Word used for the chief officer of a city or borough. In England he is elected by the council for a year, and in many cases receives a salary. He is a magistrate and presides over the meetings of the council. In London and other cities he is called the **Lord Mayor** (q.v.). The Scottish equivalent is provost.

Mayweed (*Matricaria inodora*). Plant of the order *Compositae*. It is of branching growth with narrow finely cut leaves and daisy-like scentless flowers. The stinking Mayweed (*Thymus cotula*) has a malodorous juice which causes skin irritation to persons handling it.

Mazarin Jules. Italian cardinal and diplomat. He was born at Piscina, in the Abruzzi, July 14, 1602. Richelieu in dying, recommended him to Louis XIII., whose chief minister he became. Mazarin was naturalised later, and retained his power under Louis XIV. He was made a cardinal in 1641, brought the Thirty Years' War to a successful conclusion with the Treaty of Westphalia in 1648, triumphed over the Fronde, and died March 9, 1661.

Maze Form of labyrinth or series of tortuous paths constructed in a garden. There is one in the grounds of Hampton Court Palace dating from the time of William

III. The paths leading to and from the centre are bordered usually by hedges of yew, beech and other close-growing trees.

Mazeppa Cossack trader. Ivan Stepanovitch Mazeppa belonged to a noble Polish family and was born in 1644. He was educated by the Jesuits and after some time at the court of Poland went to the Ukraine and joined the Cossacks. The story goes that he reached them tied naked to a wild horse, a punishment for a love affair. He made a great reputation among the Cossacks by his skill and in 1687 became their leader or hetman. He helped Peter the Great against Turkey and Sweden, but in 1708 transferred his services to Peter's enemy Charles XII. The enmity of the Tsar was fatal and Mazeppa's power was soon broken. He fled to Turkey and died, probably a suicide, at Bender, Sept. 22, 1709. His romantic story has been used by Byron and Victor Hugo.

Mazurka National Polish dance originating in Mazovia in the 16th century. Its vigorous character demands music in triple time with accents on the third beat and an inevitable feminine ending. Chopin idealised the musical aspect.

Mazzini Giuseppe. Italian patriot and author. He was born at Genoa, June 22, 1805. For forty years (1830-1870) he was the "most untiring political agitator in Europe," preparing the soil and sowing the seed of Italian unity. Banished from Italy in 1830, he went to Marseilles where he organised the society called "Young Italy." In 1837 he came to London, where he worked to enlist English sympathy in the cause of Italian unity. He was one of the triumvirs of the short-lived Roman republic of 1849 and vigorously supported Cavour and Garibaldi in 1859-60. He saw the consummation of his hopes for a united Italy before he died on March 10, 1872. An untiring propagandist, he is best known by his *Letters* and his essay, *On the Duties of Man*.

Mead Alcoholic beverage made by boiling honey in water with spices and adding a yeast or other ferment. It is sometimes fortified with brandy and flavoured with hops. Common in mediaeval England and throughout Europe, it is still prepared in rural England.

Meadow Grass General name for the more useful hay and pasture grasses of the genus *Poa*, abounding in cold and temperate regions. Usually tall, stout perennials, with soft, flat leaves and panicles of several-flowered spikelets they include the smooth *P. pratensis*, the blue grass of Kentucky, the rough *P. trivialis*, and the wood meadow-grass *P. nemoralis*.

Meadow Rue Large genus of perennial herbs of the buttercup order, natives of N. temperate and frigid regions (*Thalictrum*). Among British species *T. flavum*, with stout, furrowed stems 2-4 ft. high, bears pyramidal clusters of small flowers with yellow perianth leaves, petals being absent.

Meadow Saffron (*Colchicum autumnale*). Bulbous plant of the order Liliaceae. It is a hardy perennial, the large, crocus-like flowers of lavender purple bloom in September. The leaves are large and fleshy and appear in the spring, dying down before the flowers appear. The plant is poisonous and contains the drug colchicum, which is prepared for medicinal use in gouty and rheumatic afflictions.

Meadow Sweet (*Spiraea ulmaria*). Perennial herb of the rose order. It is allied to the dropwort, indigenous to N. Europe, Asia Minor and N. Asia. Common in waterside meadows in Britain, its short rootstock supports much-divided toothed leaves, 1-2 ft. long, white and downy beneath, and 2-4 ft. furrowed stems with dense clusters of small, fragrant, creamy-white flowers.

Mealies S. African colloquial name, derived from Boer-Dutch, for ears or cobs of the maize plant. This plant is grown in mealie fields or mealie gardens. See MAIZE.

Mearns Name by which the Scottish county of Kincardine (q.v.) is sometimes called.

Measles Infectious fever most common in childhood. One attack usually confers immunity.

The symptoms are a feverish cold with running eyes and nose and a general feeling of lassitude. The blotchy rash does not appear until the fifth day. As the first stage is very infectious, the child should be put to bed immediately measles is suspected and kept away from other children. A doctor must be consulted as serious complications, such as broncho-pneumonia, and after-effects sometimes arise from quite a mild attack. Incubation period is 10-14 days.

Meath County of the Irish Free State and has an area of 905 sq. m. with a short coastline on the Irish Sea. Trim is the county town: in the shire are Navan, Kells, Bective and other places of interest, as well as Tara and Newrange. The soil is fertile and the country level save in the west and the people are chiefly employed in farming. The chief rivers are the Boyne and the Blackwater. Pop. (1926) 62,969.

Meath was the name of one of the kingdoms of Ireland in the Middle Ages. It lasted until the 12th century and later was divided into the counties of Meath, Westmeath and Longford.

Meath Earl of. Irish title held by the family of Brabazon. In 1616 Sir Edward Brabazon, M.P., was made Baron Ardee. His son, William, the 2nd baron, was made an earl in 1627. Reginald, the 12th earl, was known as a philanthropist and for his efforts to make Empire Day a national holiday. He died Oct. 11, 1929. His son, the 13th earl, when Lord Ardee, commanded a battalion of the Irish Guards in the Great War.

Mecca City and capital of the kingdom of Hejaz. It is 70 miles from Jeddah on the Red Sea and is known as the birthplace of Mahomet and the holy city of the Mohammedan world. Here is the great mosque, containing in its courtyard the Kaaba.

Mechanic One skilled in the use of tools or in the manipulation of machinery. The term has special applications such as motor mechanic or aircraft mechanic.

A **Mechanics** Institute was an association of working men to obtain a wider education by means of lectures, classes and libraries. Such institutes have been superseded by technical schools. The first mechanics' institute was founded in 1824 in London by Dr. Birkbeck.

Mechanics Branch of physical science concerned with the motions of bodies and the nature of the forces which

control motion : also the effect of these forces upon bodies at rest. One section, dynamics, deals with the action of force upon moving bodies while another branch, statics, is concerned with bodies and forces in equilibrium.

Mechlin City of Belgium, also called Malmes. It is 13 miles from Brussels on the Dyle. The industries include railway shops and printing works. The archbishop is the Primate of Belgium. The city was long famous for its lace. Pop. 60,300.

Mechnikov Ilya. Russian scientist. Born May 15, 1845, he studied at the University of Kharkov and then in Germany. In 1870 he was made Professor of Zoology at Odessa and in 1887 he went to Paris to work at the Pasteur Institute. He died June 16, 1916. His discoveries are of the greatest importance in the treatment of certain diseases, notably cancer and syphilis. They concern chiefly the nature and functions of the blood. Mechnikov advocated sour milk as an aid to longevity.

Mecklenburg District of Germany. It has a considerable coastline on the Baltic Sea and consists of two little republics, Mecklenburg-Schwerin and Mecklenburg-Strelitz. Schwerin and Strelitz being their respective capitals. The former covers 5068 sq. m. and the latter 1131 sq. m. Pop., Schwerin 674,075, Strelitz 95,558.

In the Middle Ages Mecklenburg was divided into several petty states, but in 1701 it took its present form, its dukes being princes of the empire. In 1815 they were made grand dukes and in 1871 their states entered the German Empire. In 1918 the grand dukes abdicated and republics were set up. Each is governed by a landtag and a ministry responsible to it. Both are members of the Federal Republic of Germany.

Medal Piece of metal resembling a coin, but struck to celebrate an event or service. Medals were first struck by the Romans and since their time much artistic skill has been used in their design. To-day they are chiefly made and awarded for services in time of war, a custom which originated in England in the 16th century. Medals are awarded to all who have served through a campaign. At the end of the Great War over 5,700,000 victory medals were issued to men of the navy, army and air force.

Other medals, such as the Distinguished Service Medal, reward acts of gallantry and others are given to civilians for bravery in saving life. Medals are worn in a certain order of precedence and have distinctive ribbons.

Medallion Term applied to a large medal of antique character. It has been extended to include a rounded bas-relief or a circular design with figures as often met with in early stained glass or mural decoration.

Medea In Greek legend the daughter of the King of Colchis. She assisted Jason to secure the Golden Fleece and the two were married. Later Medea brought about the death of Creusa, who had become the lover of Jason. She is said to have married Aegues, King of Athens, whom later she tried to poison. Euripides wrote a play entitled *Medea*.

Medes People closely associated with the Persians. They lived in Asia Minor and later in Persia, where they gave their name to a district called Media. Their greatest king was Darius, who is mentioned

in the Bible (Dan. v.). Their laws, like those of the Persians, were regarded as unalterable.

Medici Famous Italian family. Giovanni de Medici was a trader and banker in Florence in the 13th and early 14th century. He died in 1429, when his great wealth passed to his son, Cosimo. In 1429 Cosimo, having been banished, was recalled to Florence and until his death, August 1, 1464, was the real ruler of the republic. His son succeeded to his position and soon members of the family became rulers of Florence by right of birth. The greatest of them was Lorenzo, called the Magnificent, who fully earned the epithet by the way he spent his great wealth in beautifying the city and encouraging artists and poets. He was one of the greatest figures of the Italian Renaissance.

In 1492 the Medici were expelled, but in 1512 they were re-installed. In 1530 Alessandro was recognised by the emperor as Duke of Florence and in 1569 his title was changed to that of Grand Duke of Tuscany. Three members of the family ruled until the male line died out in 1737. Two of the Medici became popes as Leo X. and Clement VII. Other notable members of the house were Catherine and Marie, both queens of France.

Medicine Art of healing. First practised by primeval man with magico-religious methods for counteracting malignant influences. It developed during ancient Euphrates, Indus and Nile civilisations into empirical systems making abundant use of remedial herbs. In early Greece rational cures first arose under the Greek physician, Hippocrates, c. 500 B.C., commonly called the Father of Medicine, whose writings influenced medical theory and practice for 2000 years. Anatomical research preceded, and Galen of Pergamum, in the 2nd century, A.D., made still further collections of knowledge which governed medieval thought.

The Renaissance gave birth to the chemical teachings of Paracelsus : Harvey accomplished the supreme discovery of blood circulation, 1628. There followed the microscope, the development of clinical practice, Hunter's foundation work in experimental and surgical pathology and the advances of Bell, Abernethy, Virchow and others. The 19th century witnessed the work of Darwin, Pasteur, Koch and Lister. More recently researches in bacteriology, biochemistry, radiology and mental disease have produced epoch-making results.

MEDICINE AS A CAREER. The main careers open to members of the medical profession may be listed as follows :

- (1) General Practice.
- (2) Government Medical Services at Home and Abroad.
- (3) Public Health Work.
- (4) Poor-Law Medical Service.
- (5) Psychological Medicine.
- (6) Scientific Research or Teaching.
- (7) Consultants and Specialists.
- (8) Certain other Careers (as Ship Surgeons).

It will be seen that the scope is very wide for the qualified doctor, and the opportunities especially in branches other than General Practice, are increasing.

Since the Act of 1876, which rendered women eligible to obtain degrees and diplomas, more and more women's names have appeared on

the Register of the General Medical Council. The disfavour with which women doctors were originally looked upon, both by their male colleagues and by the public, is rapidly disappearing, and generally speaking, women are regarded as eligible for nearly all kinds of medical work, excluding the Services of the Crown.

The two main spheres of work in which they are especially finding opportunities are general practice and posts as maternity and child welfare and School Medical Officers under the local authorities. There is a special organisation for Women's Medical Service in India.

Before medical practice can begin it is necessary under Law for the student to have his or her name entered on the Register of the General Medical Council, and for this certain medical degrees or other recognised qualifications are necessary. (It is advisable also for a student after the preliminary examinations have been taken, to have his or her name entered on the Students' Register: a copy of the regulations can be obtained from the G.M.C., 14 Hallam Street, London, W. 1.)

The work necessary for a recognised medical degree or qualification falls into three periods;

- (1) A period of about two years at a public or secondary school devoted to the study of Chemistry, Physics, and often Biology.
- (2) A period of two years in the dissecting room and laboratories of a university or medical school.
- (3) A period of three years of clinical study in a hospital.

This is the minimum time taken—illness or failure at examination frequently extends the period.

After the general degree or diploma has been taken, specialised courses for further degrees or special diplomas may be taken.

The Medical Course is therefore a long one, and it requires a considerable financial outlay in fees and maintenance before recognised qualifications are obtained. It is advisable to obtain full particulars as early as possible—from the G.M.C. or from the British Medical Association (B.M.A. House, 19b Tavistock Square, London, W.C. 1). The regulations, examination syllabuses and fees of the particular university or medical school it is proposed to enter should also be studied before the first examinations are taken.

The prospects before the qualified medical practitioner are good. The doctor in general practice has a high social standing, and although a good practice must be developed—or capital must be available to purchase a partnership in one—the remuneration is steady and adequate. Thus an income of £1000 per annum may be expected from an established practice.

The specialist can, of course, command higher fees, and the salaries scale in most of the public services extends above this figure. Full particulars of these salaries scales are available.

Medicine Hat City of Alberta, Canada. It stands on the South Saskatchewan River, 165 m. from Calgary and 660 from Winnipeg. There are some manufactures and railway shops and the city is the distributing and trading centre for a large district. It is rich in natural gas.

Medicine Man Practitioner of the healing art and kindred mysteries in primitive culture. The

term, displacing the older "witch-doctor," conventionally denotes the professional exerciser of magical powers in cultural stages up to and including the shaman of N. Asia, beyond which leech-craft and priest-craft diverge. Usually set apart by long initiation, carrying his mysteries in a medicine-bag, wearing a distinctive dress, and sometimes operating in a medicine-hut, he combines with primitive magic empirical cures and crude surgery, in Africa, America and Melanesia.

Medick (*Medicago falcata*). Perennial leguminous herb found chiefly on waste land and dry gravelling or sandy soil in E. England. The stems are hollow and the stalks bearing clusters of yellow, or sometimes violet flowers, rise from the axils of the leaves which are trifoliate. The flat downy seed pods are stickle-shaped or curved. A native of Europe the herb is found also in India and parts of Asia. Other varieties include the Black medick (*M. lupulina*) and Lucerne (q.v.).

Medina River of the Isle of Wight. It flows into the sea at Cowes, which stands on its estuary, and is navigable as far as Newport. The eldest son of the Marquess of Milford Haven bears the courtesy title of Earl of Medina.

Medina City of the Hejaz, Arabia. It is 240 m. from Mecca and has a large trade done partly through its port, Yanbua, on the Red Sea. Here the prophet lived for a time, and here, in a magnificent mosque, is his tomb. Medina was the residence of the early caliphs. It is much visited by pilgrims, as it ranks after Mecca, as a holy city. During the Great War, when it was a Turkish possession, it was besieged for a long time, but was not surrendered until Jan. 1919. Later it became part of the new state of the Hejaz. Pop. 20,000.

Mediterranean Sea Largest inland sea in the world. It has Europe on the N. and Africa on the S., while at its E. end is Asia. It is over 2000 m. long. At the W. end it communicates through the Strait of Gibraltar with the Atlantic Ocean; the E. end is closed, although it connects with the Black Sea. The Nile, the Ebro and the Rhône are the chief rivers that flow into it. The principal arms are the Adriatic and the Aegean Seas.

The Mediterranean contains an enormous number of islands, especially in the Aegean. The largest are Sicily, Crete and Cyprus. Malta is important.

Medium Name given by spiritualists to the person used as a channel for establishing communication between inquirers of this world and spirits of another sphere.

In bacteriology a sterilised nutritive substance used in the culture of germs is known as a medium.

Medlar (*Espilus germanica*). Hardy tree of the rose order, indigenous to Greece and W. Asia. Long naturalised in Britain, it grows as a much-branched spiny tree, bearing solitary white 1½ in. flowers and roundish 1-1½ in. fruits. Spineless varieties, cultivated preferably on whitethorn, quince or pear stocks, yield improved fruits, one form being stoneless. The Japanese medlar is the Loquat.

Medmenham Village of Buckinghamshire. It is on the Thames, 3 m. from Marlow and is famous for

its abbey. A Cistercian house was founded here in 1204. Later a private house was built on the site. This was the residence of Sir Francis Dashwood (1708-81), and is known because here his Hell Fire Club, a mock order of Franciscans, met and celebrated their blasphemous rites.

Medusa In Greek mythology, one of the three Gorgons. The name is also given to a free-swimming jelly-fish resembling a bell or parachute. Ranging from microscopic to forms 6 ft. across, medusae develop pendent filaments bearing organs for stinging and grasping the prey which the tentacles convey to the mouth. Several species abound round British coasts: the largest are tropical. See GORGONS.

Medway River of England. It rises in Surrey and Sussex by two small streams and flows through Kent to the Thames. It is 70 m. long, and on its banks are Tonbridge, Maidstone and Rochester. Its mouth forms a fine estuary where are Sheerness and Chatham.

Meerscham Soft porous hydrous magnesia silicate. Obtained from Asia Minor, Greece, Morocco and elsewhere, it is used chiefly, after steeping in wax, for pipe-bowls and cigar-holders.

Meerut City and district of British India. The city is 40 m. from Delhi and is an important military station. It was the place where the Indian Mutiny began in 1857. Pop. 122,609.

The district is extremely fertile, largely owing to the irrigation canals. Its principal crops are wheat, pulse, millet, sugar-cane and cotton. Owing to its comparatively elevated position it is one of the healthiest places in the plains of India.

Megalithic Age Archaeological term for the culture period characterised by the building of massive structures and monuments, and coinciding with the later Stone and Bronze Ages. In Britain the remains of the great stone circles at Avebury and Stonehenge and the numerous barrows, tumuli and earthworks scattered over the country testify to the skill and industry of the megalithic builders.

Megalomania Delusion of grandeur. As a form of insanity it may involve the belief that the sufferer is a king, millionaire or endowed with divine powers: it sometimes attends general paralysis. The word is often used untechnically for the exaggerated idea displayed by some persons of their social importance or mental powers.

Megalosaurus Extinct carnivorous reptile of the order Dinosauria. Fossil remains are found in Jurassic and Cretaceous formations in Europe, Asia and N. America. It was about 20 ft. in length and assumed the erect posture, support being given by its long thick tail. The hind limbs were large and powerful and the teeth serrated and laterally compressed.

Megaphone Sound amplifier. For speech a cone-shaped trumpet is held to the mouth. For hearing purposes there is an ear-trumpet which magnifies distant sounds for capable ears and ordinary sounds for the deaf.

Megara Ancient city of Greece. It stood near the sea about 30 m. from Corinth. A colony from Megara founded a city of the same name in Sicily.

Megarasided with Sparta in the Peloponnesian War. The modern village with some 6400 inhabitants is mainly composed of people of Albanian stock.

Megatherium Extinct giant sloth. Its remains are found in Pleistocene deposits in S. America. Probably it was contemporaneous with early man. It was about 20 ft. in length, herbivorous in habit and resembled the anteaters in respect of limbs and backbone, and the sloth in skull and teeth. In 1897 the remains of the skin and bones of a species of megatherium were found in a Patagonian cavern.

Megiddo Former city of Palestine. It stood in the plain of Esdraelon, 18 m. from Nazareth, and is several times mentioned in the Bible. Its fortifications were restored by Solomon (2 Kings, ix.). It was a flourishing city in Roman times, but had decayed when on Sept. 19, 1918, British troops took possession of it.

Megrims (or Blind Stagers). Disorder occurring in horses. Most frequently occurring in warm weather and due to congestion of the blood vessels in the brain. When straining uphill with a heavy load and tight collar a horse may suddenly exhibit symptoms of giddiness, with loss of will-power, noisy breathing, quivering nostrils and tendency to fall.

Mehemet Ali Turkish soldier. He was born in 1769 in Albania. He became a tobacco dealer, then a soldier, and took a leading part in fighting against Napoleon in Egypt in 1798. At the head of a force of Albanians he brought Egypt under his control and was made viceroy and pasha by the sultan. He crushed utterly the Mamelukes, formed a regular army and did much for the material prosperity of the land. He conquered a good part of Arabia and part of the Sudan and helped the Turks in their struggle with the Greeks. In Egypt he remained powerful until his mind gave way in 1848. He died Aug. 2, 1849, and was succeeded by Ibrahim Pasha, his adopted son.

Meighen Arthur. Canadian politician. Born in Ontario, June 16, 1874, he was educated at the University of Toronto. For a time he was a teacher, but later became a barrister in Manitoba. In 1908 he was elected to the House of Commons at Ottawa, and in 1913 was made Solicitor-General in the Conservative ministry. In 1917 he became Secretary of State, and a little later Minister of the Interior. In July, 1920, on the resignation of Sir Robert Borden, he succeeded as premier, but he resigned on his party's defeat in 1921. He was again premier for a few months in 1926, having in the meantime been leader of the opposition. On leaving office he took up an important business appointment.

Meissen City of Saxony. It stands on the Elbe, 15 m. from Dresden. Its castle is one of the finest in Germany. The city has some industries and an agricultural trade, but is chiefly famous for its china. This was first made here in the 18th century, and the state porcelain factory is one of the sights. Pop. 46,000.

Meissonier Jean Louis Ernest. French artist. Born at Lyons, Feb. 21, 1815, he studied art and soon began to paint. His best works are historical and semi-historical, and there are several in the

Wallace Collection, London. "Soldiers," "Gambling," and "Napoleon I. and his Staff" may be mentioned. He died in Paris, Jan. 31, 1891.

Meistersinger Professional poet of the Middle Ages. Meistersingers were members of guilds of musicians and went about the country singing. Some of them were connected with courts, but later they became more closely associated with the life of the people. There were guilds in many German cities, and at Ulm one lasted until 1839. Wagner aroused interest in their songs by his opera *Die Meistersinger von Nürnberg*.

Mekong River of Asia. It rises in Tibet and flows for 2800 m. to the China Sea. From Tibet it enters China, and later forms for some distance the border between Siam and Indo-China. It enters the sea by two great arms, one of which has five mouths. Owing to its many rapids the river is not much used for navigation.

Melampus In Greek legend the first mortal who obtained the powers of a prophet. He reared two serpents, and from them received the gift of understanding the language of beasts and birds. From Apollo he learned something about medicine, and he cured the daughters of the King of Argos of their madness.

Melancholia Form of insanity marked by great depression. Simple melancholia is a common form of lethargy and listlessness, sometimes with hallucinations and sleeplessness, not necessarily needing treatment in a mental hospital. In acute forms, observable in maturer years, the depression becomes intensified; this may pass into active excitement or into stupor, sometimes leading to suicide. A condition in which excitement and depression occur, not necessarily alternately, is called manic-depressive insanity.

Melanchthon Philip. German scholar and reformer. Born Feb. 16, 1497, at Bretten in Baden, his real name was Schwarzord. Educated at Heidelberg, he became Professor of Greek at Wittenberg, where he was Luther's fellow-worker. In 1521 he published *Loci Communes*, the first great Protestant work on dogmatic theology. The Augsburg confession was composed by him. He attended the Diet of Worms, and after Luther's death attempted to reconcile all the parties of the Reformation, and even the Reformers and the Roman Catholics. He died at Wittenberg, April 19, 1560.

Melanesia Group of islands in the Pacific Ocean. They lie to the W. of New Guinea and Australia, and include the New Hebrides, New Caledonia, Solomon, Gilbert and Ellice Islands and others. Most of them are British, but France owns a number. Those that were German before the Great War are now administered by Australia and New Zealand under mandate from the League of Nations.

Melba Dame Nellie. Name taken from her birthplace, Melbourne, by the Australian singer, Helen Porter Mitchell. A daughter of David Mitchell, she was born May 19, 1859. In 1882 she married Charles Armstrong. Having shown exceptional talent as a singer, she studied in Paris and became a professional. Her first appearance was in Brussels in 1887, and for the next 30 years she was one of the world's leading singers.

In 1918 she was made D.B.E. In 1925 she published *Melodies and Memories*. She died Feb. 23, 1931.

Melbourne Town of Derbyshire. It is 7 m. from Derby, on the L.M.S. Rly. It has some textile manufactures and is a market gardening centre. Pop. 3700.

Melbourne Capital of Victoria, Australia. It is situated on Port Phillip, at the mouth of the Yarra, a site selected about 1837 and named after the then Prime Minister. It is noted for its parks, public gardens, and flower-decked streets. Collins Street, 1½ m. long is famous. Here are the Parliament Buildings and the two cathedrals. It has two broadcasting stations (31.55 M., 5 kW. and 31.28 M., 20 kW.).

Other important buildings are Flinders St. Rly. Station, the public library, art gallery and museum, the university and the law courts. The city is connected by rail with neighbouring States and has an excellent electric suburban railway system.

Population (including the 23 suburban areas) 1,790,817, over 57 per cent. of the state.

Melbourne William Lamb, 2nd Viscount. English statesman.

Born March 15, 1779, he was educated at Eton and Trinity College, Cambridge, and entered Parliament in 1806. He was Irish Secretary from 1827-28, and Home Secretary in 1830. Prime Minister from 1835-41, his influence over the young queen, Victoria, was great, and he impressed on her the sound constitutional principles to which she adhered throughout her reign. He was unable, however, to restrain her from showing a partisanship over Court appointments, which led to the fall of the Whig government and Melbourne's resignation in 1841. He died Nov. 24, 1848.

Melchett Alfred Moritz Mond, Baron.

British politician and industrial magnate. Born at Farnworth, Lancashire, Oct. 23, 1868, the son of Dr. Ludwig Mond, F.R.S., he was educated at Cheltenham College, St. John's College, Cambridge, and Edinburgh University. Called to the bar in 1894 he entered his father's firm of Brunner Mond & Co., chemical manufacturers, and became identified with a number of other important industrial concerns, later forming the great Imperial Chemical Industries. His writings on industrial and political problems were re-issued in *Questions of To-day and To-morrow*, 1912. As a politician he was Liberal M.P. for Chester, 1906-10; Swansea, 1910-22; and succeeding over the land policy of 1926 became Conservative in 1920 and represented Carmarthen, 1924-28. He was First Commissioner of Works in the Lloyd George Ministry, 1916, and Minister of Health, 1921-22. Made a baronet in 1910, a Privy Councillor in 1913 and a baron in 1928, and F.R.S. He died Dec. 27, 1930.

Melchizedek King and priest of Salem. He is mentioned in Genesis xiv. 18.

Meleager In Greek legend a great hunter. He was a son of Oeneus and Althaea, and was a king of Calydon. He went with the Argonauts on their expedition. His great exploit was to kill the bear which the goddess Artemis sent to ravage Actolia.

Melinite Disruptive explosive. It is of the trinitrotoluene type used in France, and resembles in composition the

British explosive, lyddite. It consists essentially of a mixture of trinitrotoluene and picric acid (trinitrophenol), the compound being less sensitive and dangerous to handle and having a lower melting point than the component substances.

Melksham Urban district and market town of Wiltshire. It stands on the Avon, 98 m. from London, on the G.W. Rly. The industries include flour milling. Pop. (1931) 3881.

Mellon **Andrew William**. American politician and financier. Born at Pittsburgh, March 24, 1855, he became like his father, a banker, and was closely identified with some of the industries of Pennsylvania. A republican in politics, he was made Secretary to the Treasury in 1921, and held that post until 1932, when he was appointed Ambassador to the Court of St. James's. He had a good deal to do with the negotiations about European debts, and in 1931 expressed the opinion that Great Britain was bearing an undue proportion of the burden.

Melocactus Genus of perennial succulent plants of the cactus order, natives of Mexico, W. Indies, Brazil and Colombia. It is also called melon-thistle. The swollen melon-shaped stems, vertically ridged, are surmounted by cylindrical caps clothed with woolly hairs and spines, bearing rose-red tubular flowers.

Melodrama Originally a play in which music was introduced to give a more dramatic or emotional effect. Melodramas were first produced in France in the 18th century, an example being Rousseau's *Pygmalion*. To-day the word is used for a play which has a strong emotional appeal of a popular kind. Examples are *The Silver King*, played by Wilson Barrett, and *The Sign of the Cross*. In London, the Old Surrey and Adelphi and the new Lyceum theatres were long regarded as special homes of melodrama.

Melon (*Cucumis melo*). Annual trailing herb of the gourd order, indigenous to S. Asia. Cultivated from antiquity, it provides important crops in all tropical and sub-tropical lands, being raised for some European markets under glass. The size of the fruit, usually globular, ranges from an olive to a giant gourd. The edible flesh, white, scarlet or green, is the pericarp's inner layer. **Water melons**, the fruit of the allied *Citrullus vulgaris*, are usually larger and conserc-fleshed.

Melrose Burgh of Roxburghshire. It stands on the Tweed, 37 m. from Edinburgh, on the L.N.E. Rly. The abbey, once the greatest in Scotland, was associated later with Sir Walter Scott. The ruined church contains some magnificent stonework and windows, and in it are some interesting tombs. It is much visited by tourists. On the other side of the Tweed is the suburb of Gattonside. Pop. (1931) 2052.

Meltham Urban district of Yorkshire (W.R.). A centre of textile industries, it is on the L.M.S. Rly., 5 m. S. of Huddersfield. Pop. (1931) 5051.

Melton Mowbray Market town and urban district of Leicestershire. It is 14 m. from Leicester and 102 from London, and is reached by the L.M.S. Rly. Melton is famous for its *perkins*, and equally well known as a centre for the Quorn, Cottesmore and Belvoir hounds. It has an agricultural trade. Pop. (1931) 10,437.

Melville Island, bay and sound of the Arctic regions. It is 200 m. long and covers about 20,000 sq. m. It was discovered in 1819. **Melville Sound** separates the island from Victoria Island. It is 240 m. long. An opening of Baffin Bay is called **Melville Bay**. **Melville Peninsula** is a part of the Canadian mainland. It is an eastward extension of the N.W. territories and is to the N. of Hudson Bay. It is nearly 300 m. long and covers about 30,000 sq. m.

Melville **Andrew**. Scottish theologian and leader of Presbyterian thought. He was born at Baldovie, Forfarshire, Aug. 1, 1845. After teaching in France and Switzerland he became Principal of the College of Glasgow (1874), and helped to draw up the Presbyterian *Second Book of Discipline*. After preaching against absolute authority and "remonstrating" with James VI. he was imprisoned in the Tower for four years. On his release he left England and resumed teaching in France. He was several times Moderator of the General Assembly. He died about 1922.

Melville **Hermann**. American author and novelist. Born Aug. 1, 1819, in New York City, he went to sea when 17, in a whaler, deserted twice, was captured by cannibals in the South Seas, and eventually joined a man-of-war, and after serving, returned to Boston in 1844 and began writing. He published *Typee* (1846) and *Momo* (1847), tales of life among the cannibals. In 1850 came *White Jacket*, embodying his experience as a sailor, and by its force, largely abolishing corporeal punishment in the navy. In 1851 he published his masterpiece, *Moby Dick*, a tale of the sea and whaling. He died Sept. 27, 1891.

Memel or **Klaipeda**. Territory and seaport of Lithuania. On the Baltic, near the N. end of the Kurische Haft, the town is 74 m. from Königsberg. Before the Great War, Memel was a province of E. Prussia, but by a convention of May, 1924, it was constituted a unit within the sovereignty of Lithuania, with a certain measure of administration and financial autonomy. Poland uses the port. The harbour is a fine one, and large quantities of timber and grain are handled. There are many important industries, including shipbuilding-yards, foundries, chemical works, etc. Area of territory, 1025 sq. m. Pop. territory, 145,000; town, 36,600.

Memline **Hans**. Flemish religious painter. He was born at Mainz about 1430. He had an original style, powerful yet simple. He painted beautiful pictures of the Virgin, and panoramic pictures of the life of Christ and St. John. His "Mystical Marriage of St. Catherine" and "Shrine of St. Ursula" are in Bruges, where he died Aug. 11, 1494.

Memnon In Greek mythology the son of Tithonus and Eos. He was very beautiful and was beloved of Zeus. He helped the Greeks in the Trojan War and was killed by Achilles.

Memory Power of retaining and reproducing mental impressions. It varies very much in different persons, and there are on record cases of persons who possessed extraordinary powers of memory. Several theories have been put forward about its origin and nature; it certainly owes a great deal to the association of ideas.

Memory consists of four processes: learning, retention, recall and recognition, and of it there are three kinds—mechanical, which depends on the grouping of ideas in a certain order, by repeating the words that represent them; artificial, by the deliberate association of certain ideas with certain words or symbols; and logical, or the association of ideas.

Many schemes have been put forward for improving the memory and some have produced valuable results.

Memphis Ancient city of Egypt. Its site is on the Nile, 14 m. from Cairo. It became a splendid city and was for a time the country's capital. It contained magnificent buildings, and a colossal statue of Rameses II. The city, of which some ruins remain, was named after its founder, King Menes.

Memphis City and river port of Tennessee. It is on the Mississippi, and is the largest city in the state, being a great centre for the sale of cotton. Pop. 253,000.

Menagerie Collection of wild animals maintained for study or exhibition. Travelling collections sometimes accompany circus shows. Stationary collections have been formed by conquering monarchs since early times. The collection kept at the Tower of London was removed to the Zoological Gardens in 1831. It received contributions from Queen Victoria's private menagerie in 1901, and now has an open-air menagerie at Whipsnade (q.v.). See ZOOLOGICAL GARDENS.

Menai Bridge Urban district of Anglesey. It is on the Menai Strait, near the end of the suspension bridge and has a harbour and a little shipping. Pop. (1931) 1675.

Menai Strait Sea passage of Wales. It is between Carnarvonshire and Anglesey, and is 14 m. long and 1 or 2 m. wide. Two bridges cross the strait. The suspension bridge which carries a road was opened in 1826. The tubular bridge, the property of the L.M.S. Ry., was opened in 1850. It is 1840 ft. long.

Menander Athenian poet. He lived in 1834, he observed periodicity in the change of properties of elements when tabulated according to atomic weights. This "periodic law" led to the discovery of new elements. He died Feb. 2, 1907.

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Mendelism Term applied to a theory of heredity. It is based upon the experiments made by the Abbé Gregor Mendel, an Austrian scientist (1822-84). Mendel experimented with the breeding and hybridisation of the culinary pea, and from the results of his investigations formulated certain laws of heredity. His work has been carried further during the last 30 years, and his generalisations are found to hold good for plants and animals in general. Mendel found that certain characters are inherited by hybrids, and these he termed dominant, others were not shown by hybrids but occur in their offspring, and these are known as recessive.

Mendelssohn-Bartholdy

Jakob Ludwig Felix. German composer. Born Feb. 3, 1809, at Hamburg, he was the grandson of the philosopher, Moses Mendelssohn, and son of Abraham Mendelssohn, a banker. He was baptised and educated as a Christian, his father adding the surname Bartholdy to the family name. He was broadly and thoroughly educated at home. A precocious first appearance as composer-pianist in 1818 led to an uninterrupted successful and happy career. In 1826 he composed the music for *A Midsummer Night's Dream*. In 1829 he visited London and Scotland. From 1833 onwards he held various conductorships, and in 1843 founded Leipzig Conservatoire. In 1846 he conducted his oratorio *Elijah* at Birmingham, and died on Nov. 4, 1847, having achieved a consummate artistry in every form of music except opera.

Mendip Hills Range of hills in Somerset. It extends from near Wells to the Bristol Channel. The highest point is Blackdown (1068 ft.), and the range includes the Cheddar Cliffs.

Mendoza Daniel. English prize fighter. He was born of Jewish parents in London in 1764, and soon made a name as a fighter. In 1787 he beat Sam Martin, and he was successful in encounters with other pugilists, but in 1795 he was beaten by John Jackson. He continued his career until 1820, when he was beaten by Tom Owen. He died Sept. 3, 1836.

Menelaus Greek hero. He was the brother of Agamemnon, and became the husband of Helen. In this way he secured the throne of Sparta. During his absence, Paris visited his court and carried off his wife. The Trojan War was the result. Menelaus went to the war, and when Troy was taken, recovered his wife.

Menelek II. Emperor of Abyssinia. Born at Choa, Aug. 18, 1844, he claimed to be a direct descendant of Solomon and the Queen of Sheba. Founder and organiser of the modern Abyssinian state, he made war against the Italians to preserve the independence of his kingdom, and defeated them at Adowa. In 1896 the absolute independence of Abyssinia was recognised. Towards the end of his reign he maintained very friendly relations with both England and France. He died at Addis-Ababa, Dec. 12, 1913.

Ménier's Disease Ear complaint marked by sudden attacks of giddiness and ringing of a high musical note, followed by deafness. Named from the French physician who described it, 1861, it is usually caused by escaped blood in the labyrinth, due to intense heat or certain diseases. Potassium iodide or bromide is often used remedially.

Menin Town of Belgium. It stands on the Lys, 10 m. from Ypres. It was taken by the Germans in Sept. 1914, and there was constant fighting around it during the next four years.

The **Menin Gate** is a memorial at Ypres to the British who fell in the war. It is at Ypres on the Menin Road, hence its name. Designed by Sir Reginald Blomfield, it is in the form of a Roman arch. It was unveiled on July 24, 1927.



THE MENIN GATE.—The impressive War Memorial at Ypres on the inside walls of which are carved the names of the fallen. The tablet above the arch is inscribed "To the armies of the British Empire who stood here from 1914 to 1918, and to those of their dead who have no known grave."

[Topical

Meningitis Inflammation of the meninges, the membranes investing the brain and spinal cord. It may arise from injuries to the brain, tumours, diseased adjacent parts or sunstroke, or be excited by the bacterial causes of other fevers present. When, as frequently with children, it is due to the tubercle bacillus, it is called *tubercular meningitis*, acute hydrocephalus or water on the brain. A malignant type, due to another specific micro-organism, is called *epidemic cerebro-spinal meningitis*, or *cerebro-spinal fever* (q.v.).

Mensuration Branch of mathematics. It deals with the measurement of lengths, areas and volumes, and the formulation of rules for calculation. In general the term mensuration is used only for the measurement of surfaces, solids and regular figures, that of irregular figures coming under other branches of mathematics.

Mental Defective Term used for one whose mind is not fully developed, but who is not insane. Of late years great attention has been paid to the training of mental defectives. For mentally defective children special schools have been opened as have hospitals and other institutions. Proposals for sterilising mental defectives have been put forward, but as yet very little has been done in this direction.

Menthol White crystalline substance obtained from oil of peppermint. It comes chiefly from *Mentha arvensis* or *piperascens* and *plabra*, growing in Japan and China. Menthol is met with either in the form of fine needle-like crystals or in moulded masses, and is used as a local anæsthetic.

Mentmore Village of Buckinghamshire. It is 4 m. from Leighton Buzzard. Here is the magnificent seat of the Earl of Rosebery, formerly the property of the Rothschild family.

Mentone Watering place of France. It is on the Riviera, 13 m. from Nice. Beautifully situated and with a delightful climate, it has many other attractions for visitors including promenades, gardens and a casino. Pop. 18,000.

Mentor Greek hero. Odysseus left him to look after his son Telemachus and his estates when he went to the Trojan War. Thus the word has become a synonym for a wise counsellor.

Meles In German legend a familiar spirit "not loving light," with whom Faust made a pact bartering away his soul. In Maclowe's tragedy he is the fallen angel of theology combined with the old German kobold. Goethe, influenced by Lessing, changed him into an evil principle with which man's spirit eternally conflicts. See FAUST.

Mercantile Marine Term used for the shipping engaged in commercial purposes. In Great Britain it is controlled by the Board of Trade, which administers the laws that deal with it. The Board has a mercantile marine consultative branch at Great George Street, London, S.W. 1. To unite the service there is a Master of the Merchant Navy, an office created in 1928 and held by the Prince of Wales. On Tower Hill, London, there is a memorial to the 12,649 officers and men of the merchant service and fishing fleets who lost their lives in the Great War. In 1930 the

mercantile marine of Great Britain and Ireland had a tonnage of 20,438,444 gross tons. See SHIPPING.

THE MERCHANT NAVY. As a career the training of a Navigating Officer normally takes place either partly in a recognised Training Ship or Nautical Training College, or by apprenticeship wholly at sea.

In the former case training may begin at 13 years or earlier, and continues until 16 or 17. Evidence of a satisfactory standard of education is required on entry, and after a minimum period of two years' training a certificate is granted to the successful candidate carrying exemption from one of the four years required for the Second Mate's Certificate. Application should be made as below for admission as an apprentice. The fees payable vary, but are of the order of £100 to £170 per annum.

In the latter case the boy should continue his general education until 16 or 17, and apply to be admitted as an apprentice to the shipping companies selected or to the Shipping Federation, Ltd., 52 Leadenhall Street, E.C. 3, through which body a number of the companies customarily recruit. No written examination is required—inquiries take the form of personal interview. It should be remembered that some physical defects, especially defective eyesight, will definitely disqualify a boy when he comes to take the Second Mate's Certificate.

The Board of Trade issues a model form of indenture for apprenticeship. Full particulars of the examinations necessary for Board of Trade Certificates during and after the period of apprenticeship may be obtained from the B.O.T. Regulations (Examination of Masters and Mates).

The prospects may be studied from the rates of pay which will be supplied in detail by the General Secretary of the National Maritime Board, 3/4 Clement's Inn, London, W.C. 2, from The Shipping Federation, or from firms of shipowners. Most officers continue at sea for the whole of their professional life, but there are a few shore appointments, with salaries ranging up to £1500 per annum.

Although a seafaring life may not offer a fortune, it does offer opportunity for saving, a good life and prospects of seeing something of the world, while modern conditions for apprentices are very different from those of the old exacting days of sailing ships. There is little home life, of course, and at present the supply of Officer and Deck ratings is rather more than equal to the demand—with resulting unemployment.

Mercator Gerardus. Flemish geographer. Gerhard Kremer, later called Mercator, was born March 5, 1512, and educated at Louvain. He was employed by the Emperor Charles V to draw maps for military purposes, and later made a survey of Flanders. In 1532 he settled at Duisburg and the rest of his life was engaged in drawing maps. In 1568 he first used the system of projection, parallels and meridians at right angles, since known by his name. Mercator died Dec. 2, 1594. His maps were published in an atlas, a name for which he was responsible.

Mercer Dealer in small wares, silks, velvets and other rich fabrics. Mediaeval mercers tended to abandon the homelier cloths to the drapers. A London Mercers' Guild existed, 1172; the Mercers,

Company, first chartered, 1393, is London's premier livery company. The hall in Cheap-side and the adjacent chapel replace a hospital commemorating Thomas à Becket's birthplace; its school is now the **Mercers' School**, Holborn. The company also governs S. Paul's School, Hammersmith. Corporate income, £53,000; trust income, £58,000; membership, 221.

Mercerisation Name given to a chemical process by which a silky lustre is given to cotton fabrics. The process was invented by John Mercer (1791-1868), whose first patent was taken out in 1850. The yarn is treated with caustic soda solution of a particular strength.

Merchant Taylors London livery company. It is one of the 12 great companies and dates from about 1300. It has a large income and a magnificent hall in Threadneedle Street, London, E.C. The company maintains some almshouses at Lee, London, S.E.

The **Merchant Taylors' School** was founded by the company in London in 1561. It was in Suffolk Lane until 1873 when it was moved to Charterhouse Square. In 1931 it was decided to build a new school at Berkhamsted, and an extensive area of land was bought for the purpose. The school, which has a close connection with S. John's College, Oxford, has accommodation for about 600 boys, all day pupils.

There is also a **Merchant Taylors' School** at Great Crosby, Liverpool. This was founded in 1618, and until 1910 was managed by the Merchant Taylors' Co. The buildings were enlarged in 1913.

Mercia Anglo-Saxon kingdom of England. It came into existence about 600, and was in the centre of the country between the Thames and the Trent, excluding E. Anglia. At one time it included London. It became independent when Penda was its king in the 7th century. Under Offa, who died in 795, it was the most powerful of the English kingdoms, but early in the 9th century was conquered by Wessex. Its chief towns were Lichfield, Repton and Tamworth.

Mercier *Désiré Joseph*. Belgian prelate. Born Nov. 21, 1851, he was educated in Malines and ordained in 1874, afterwards studying at Louvain and Paris. Professor of Philosophy in the University of Louvain, 1882-1906, he was then made Archbishop of Malines and Primate of Belgium. In 1907 he was created a cardinal. When the Germans entered Belgium in Aug., 1914, Mercier boldly upheld the rights of his country. He took a leading part in the conferences with representatives of the Church of England held in Malines between 1920 and 1923, and died in Brussels, Jan. 23, 1926. A noted *terruer*, *Voscholastique*, and in his writings sought to adapt the philosophy of S. Thomas Aquinas to the conditions of the modern world. He published his *War Memories* in 1920.

Mercury Smallest of the planets and the nearest to the sun, from which its mean distance is 36 million miles. Its year is a period of 88 solar days, in which time it also rotates upon its axis thus bringing the same side always towards the sun. The orbit of Mercury is eccentric and subject to varying perturbations technically known as elongations. The diameter of the planet is

2702 miles and its density about three-fifths that of the earth.

Mercury Metallic element. Its atomic weight is 200.61, symbol Hg, and melting point -39.5°C. Commonly known as quicksilver, it occurs in a fluid state and is found as small globules scattered through the gangue of a vein or as an amalgam with silver. It is extracted chiefly from the native sulphide, cinnabar, which occurs in Spain, California and Idria in Yugoslavia. Mercury is a heavy silver-white metal which readily combines with gold, silver and many other metals to form amalgams. It is used in the extraction of gold, the construction of thermometers and barometers, for silvering mirrors and in medicine.

Mercury Roman god of trade, commerce, responding to the Greek god Hermes. He was regarded by the Roman traders as their patron. He was also the herald of Jupiter and for this reason the word is used for a journal or newspaper, e.g., the *Leeds Mercury*. See HERMES.

Mercy Sisters of. Order of women in the Roman Catholic Church. It was founded in Dublin in 1831, and has a number of houses in England, the U.S.A. and elsewhere. Its members take the usual vows and live in convents. They look after women and girls in trouble or poverty, and maintain homes and orphanages.

Mere Geographical term for a large pool or lake. The word occurs as a suffix in such names as Windermere and Buttermere. In some cases meres are formed by subsidence of the strata due to dissolution of the rocks, as in Cheshire, where the removal of rock salt has caused the formation of broad, shallow meres.

Meredith *George*. British novelist and poet. Of mixed Irish and Welsh origin he was born in Portsmouth, Feb. 12, 1828. Educated in Germany, he was articled to a solicitor in London in 1844, but abandoned the law for journalism. He was for 30 years literary reader to Chapman and Hall. He died on May 18, 1909.

Although never very popular his work shows great beauty of word and phrase, and his descriptions of scenery and emotion are varied and vivid. His poetry, too, reveals much beauty, but is intricate and lacks melody. Among his novels are *The Ordeal of Richard Feverel* (his most popular work), 1859; *Adventures of Harry Richmond*, 1871; *Beauchamp's Career*, 1875; *The Egoist*, 1879; *The Tragic Comedians*, 1881, based on the tragedy of Laisalle; and *Diana of the Crossways*, 1885, recalling the story of the Hon. Mrs. Norton. His verse includes *Modern Love* and *Poems of the English Roadside*, 1862; and *Poems and Lyrics of The Joy of Earth*, 1883.

Meridian In astronomy the great circle which passes through the poles of the celestial sphere, or the point at which sun or star attains its highest altitude. On the earth's surface a meridian is a great circle passing N. and S. through the poles. Degrees of longitude are numbered from a meridian passing through Greenwich.

Mérimée *Prosper*. French novelist. Born in Paris, Sept. 28, 1803, he entered the civil service and in 1853 became a senator. He belonged to the Realist School, but wrote in a style as exquisitely polished as it was precise. He is best known to English readers perhaps for his *Colomba*, so

familiar to school-children learning French, and his delightful *Curmen*. He also wrote a *Chronique du Règne de Charles IX.* and some historical and archaeological works. His *Lettres à une Inconnue* and *Lettres à une autre Inconnue* give an amusing picture of society during the Second Empire in France. He died at Caunes, Sept. 23, 1870.

Merino Spanish name for a breed of sheep producing fine white wool. Imported by Louis XVI. to Rambouillet, 1783, that and other improved breeds have reached S. Africa, Australia, New Zealand, Argentina and the U.S.A. The word also denotes dress-goods of finest wool, but, in hosiery, cotton and wool fibre-mixtures, as distinct from all-wool yarns.

Merionethshire County of Wales. Between Caernarvon and Denbigh on the N. and Montgomery on the S. and E., it covers 660 sq. m. The beautiful scenery includes Cador Idris, the Berwyn Hills and Lake Vyrnwy. The valleys of the upper Severn and the Dovey are specially picturesque. Dolgelly is the county town; on the coast are Barmouth, Towyn and Harlech. The soil is poor, much of it fit only for sheep. There are slate quarries. Pop. (1931) 43,198.

Merit Order of. British order. Founded in 1902, its membership is limited to 21, but it gives neither title nor precedence. The letters O.M. signify membership. An Indian order of merit was founded in 1837 for native officers and soldiers, and there are similar orders in several European countries.

Merlin Traditional Welsh bard and soothsayer. His shadowy story, turned into a romantic myth by the 12th-century Geoffrey of Monmouth, represents him as an enchanter of miraculous birth associated with the cycle of Arthurian romance.

Merlin (*Falco aesalon*). Small bird of prey inhabiting Europe and Asia. The smallest of British falcons, 10-12 in. long, the male plumage is bluish-grey above, bluish below, the tail being black-banded; the female is brown. Chaucer mentions their use for flying at larks. The wool-lined ground nest shelters 4-6 brick-red eggs.

Mermaid Tavern Inn that formerly stood in Cheapside, London. Here Shakespeare, Ben Jonson and others of their circle are supposed to have met. It stood near Friday Street, and was destroyed in the fire of 1666.

Meroë City of Ethiopia and a district of the Sudan. The district is almost surrounded by the Blue Nile and the Atbara. The city stood near Shoull on the E. bank of the Nile. Just before the opening of the Christian era it was the capital of Ethiopia. Excavations conducted by John Garstang have unearthed remains of temples, pyramids, etc., which show evidences of Egyptian and Greek culture.

Merovingians Line of Frankish kings. They began to rule about 500 in the person of Clovis and remained on the throne until 751. In that year Pepin deposed Childeric III., and the Merovingian kings were succeeded by the Carolingians. The name is from Merovech, one of their early princes.

Merriman Sir Frank Boyd. English lawyer and politician. Born in 1880, and educated at Winchester, he was called to the Bar in 1901, became a K.C. and served in the European War. Conservative

M.P. for Rusholme since 1924, he was Recorder of Wigan, 1920-28, and Solicitor-General, 1928-29. He was knighted in 1928 and in 1931 became Solicitor-General in the National Government.

Merriman Henry Seton. Name taken by the English novelist, Hugh Stowell Scott. He was born at Newcastle-on-Tyne, May 9, 1862, and educated at Loretto. He entered business life in London but soon gave his whole time to literature, and died Nov. 19, 1903.

Among his books are *With Edged Tools*, *The Sowers*, *Roden's Corner*, *Barlusch of the Guard*, *The Isle of Unrest* and *In Kedar's Tents*.

Mersea Island of Essex. It is 8 m. from Colchester, between the estuaries of the rivers Colne and Blackwater. A causeway connects it with the mainland. The island is 5 m. long and about 2 wide. The chief centres are **West Mersea**, an urban district, and **East Mersea**.

Mersey River of England. It rises in Derbyshire, and flows between Lancashire and Cheshire to the Irish Sea. Its total length is 70 m. The estuary, 16 m. long, is a great shipping area. On it, in addition to Liverpool and Birkenhead, are Runcorn, Wallasey, Bootle, Port Sunlight and several watering places, among them New Brighton and Seaforth. The Manchester Ship Canal joins the estuary at Eastham and underneath the river are tunnels serving Liverpool and Birkenhead. Continual dredging is necessary to keep the channel clear for the great liners.

The docks at Liverpool and Birkenhead are controlled by the **Mersey Docks and Harbour Board**.

Mersey Viscount. English lawyer. Born in Liverpool, Aug. 3, 1840, John Charles Bigham was educated there and abroad. He became a barrister and soon won a reputation by his skill in conducting commercial cases. From 1895-97 he represented a Liverpool division in Parliament. In 1897 he was made a judge, and in 1909 he became President of the probate, divorce and admiralty division. In 1910 he retired, but he was chosen to inquire into the wrecks of the *Titanic* and the *Lusitania*, and served the state in other directions. In 1910 he was made a baron and in 1916 a viscount. He died Sept. 3, 1920.

Merthyr-Tydfil Borough and market town of Glamorganshire. It stands on the Taff, 24 miles from Cardiff and 184 from London, on the L.M.S. and G.W. Ryrs. The borough includes Dowlais, Plymouth and Cyfarthfa. The chief industries are coal mines and iron and steel works. Pop. (1931) 71,099.

Merton District of London. It is near Wimbledon, on the S. Ry., and is now a residential area. In 1236 a great council was held here.

Merton College, Oxford, founded by Walter de Merton, was first at Malden in Surrey, but was removed to Oxford in 1274.

Meshed Town of Persia. Capital of a province, it is about 200 miles from Herat, is surrounded by walls and has a considerable trade. The magnificent mausoleum of the Imam Riza, son of Ali, is visited yearly by thousands of Mohammedan pilgrims. In 1918-20 Meshed was occupied by a British force. Pop. 55,000.

Mesmer Friedrich Anton. German physician. Born in Baden, May 23, 1733, he studied medicine in Vienna. In 1766 he published a book called *Influence of the Planets on the Human Body*, and later he met with much success when he treated his patients with what is now called hypnotism. He died at Meersburg, March 5, 1815.

Mesmerism Method of sending a person into a trance or sleep by the use of suggestion and movements of the hands. It was called after Friedrich Mesmer, who used these methods and other aids, such as a darkened room hung with mirrors and filled with scents. See HYPNOTISM.

Mesopotamia Region of Asia, corresponding roughly with the basin drained by the Tigris and the Euphrates. It is bounded by Persia, Turkey, Syria and the Nejd, having the mountains of Armenia and Asia Minor to the north and the Persian Gulf to the south. The northern parts are undulating and crops can be grown there, but south of Bagdad is an alluvial plain, 35,000 sq. m. in area, in which cultivation is only possible by irrigation which has been practised here since the earliest times.

Historical records, revealed by the excavation of ancient cities, go back to the fourth millennium B.C. and the oldest civilisation was that of the Sumerians. Successive Semitic invasions gradually overwhelmed the Sumerian dynasties, the empire of Akkad, founded by Sargon at Kish, opening the era of consecutive history which witnessed the rise of Babylon, the great succession of Babylonian dynasties, the conquests of the Assyrians and the passing of Babylonia under the sway of Persia.

Conquered by Alexander the Great, Mesopotamia never became extensively Hellenised, but passed by degrees under the rule of the Parthians and for a short time under Trajan was part of the Roman Empire. Reconquered by Persia, it fell to the Arabs shortly after the rise of Islam, and became the centre of Moslem culture under the Caliphs. Conquered again by the Mongols under Hulagu and by the Tartars under Timus, the country, now laid desolate, was the scene of a struggle between Turks and Persians which ended in victory for the former, and Mesopotamia remained in Turkish possession till the growth of Arab nationalism led to its liberation during the Great War and its reconstitution into the kingdom of Iraq after the war.

Mesopotamia is extremely rich in archaeological remains and ancient monuments. Excavations at Ur, Kish, Babylon, Erech, Nippur, Lagash, Nineveh, Asshur and other ancient sites have yielded important results, but much work still remains to be done. Of existing monuments, the arch at Ctesiphon, the ruins of Babylon, and the ziggurat of Ur are worthy of mention. See SUMER, AKKAD, BABYLON, IRAQ.

Messalina Valeria. Wife of the Roman Emperor Claudius. She was noted for her avarice, cruelty and lust. While the emperor was away she publicly married one of her favourites, and eventually Claudius had her executed in A.D. 48.

Messiah Title "the Anointed," associated in Hebrew prophecy with the expected advent of one who would restore the kingdom of David. The Messianic hope, still surviving in Jewish theology, profoundly influenced the spread of Christianity.

Messina City and seaport of Italy. It stands on the strait of Messina, 70 m. from Syracuse. It has a fine harbour, but most of the buildings were destroyed by an earthquake in Dec. 1908. Since rebuilt, it contains some imposing structures, both ecclesiastical and secular, and the famous university has been partly reopened. The chief industry is shipping. Silk, muslin, and linen are manufactured. Pop. 203,000.

The strait of Messina between Italy and Sicily is about 20 miles long.

Messines Village of Belgium. It is in Flanders, 6 miles from Ypres and gives its name to a ridge of hills conspicuous during the Great War. On Nov. 1, 1914, the Germans entered Messines and they held it and the ridge until 1917. On June 7th of that year the British made a determined attempt to capture the ridge. The German lines were captured according to plan and their counter attack failed. The operations were directed by Lord Plumer and 7200 German prisoners were taken. The ridge and the other gains were lost in April 12, 1918, during the German offensive, but they again came into British hands during the advance in Sept. 1918.

Message Legal term for a dwelling-house with the outbuildings and garden that go with it.

Mestrovic Ivan. Croatian sculptor. Born in Dalmatia in 1883, he started life as an apprentice to a master mason at Spalato. He studied art at Vienna and soon attracted attention by his sculptures, first exhibited in 1902. In 1906 and 1915-17 works by him were on view in London and there is a torso by him in the Victoria and Albert Museum, South Kensington. Other works include portraits of Pius XI. and President Hoover.

Metabolism Term in biology. It is applied to the constant physical and chemical changes taking place in the protoplasm of all living tissues. One series of processes are concerned in the building up of tissues from simpler substances and are termed anabolic, while the reverse or katabolic process breaks down the protoplasm into simpler bodies.

Metal Larger of the two groups of chemical elements. A few of the metals are widely distributed throughout the earth's crust, others are of more restricted occurrence, while many are only present in small quantities in rare minerals. Iron and aluminium in the form of oxides and silicates, with calcium and magnesium as carbonates, form a considerable portion of rocks, while sodium and potassium compounds are abundant in sea-water and certain deposits. The characteristic physical properties of metals are their lustre and opacity, density, malleability, ductility, fusibility and conductivity, although a wide range of variation and degree occurs. Magnetic properties are present in iron, nickel and cobalt.

Metallography Branch of metallurgy. It deals with the microscopic examination of metals and alloys and the effect upon them of microchemical reactions in elucidating their physical structure. It was founded by Dr. Sorby of Sheffield in 1884 and has become of great importance in the investigation of causes of fracture and the structure of alloys, both ferrous and nonferrous. A highly-polished section of metal is etched by certain chemical

reagents and the characters of the etchings are studied by reflected light under a special type of microscope.

Metallurgy Science dealing with the extraction of metals from their ores and their adaption to manufacture. The methods employed are based upon a knowledge of chemistry, electricity, mineralogy, and the physical sciences. Metallurgy is one of the oldest of the arts and has now reached a very high stage of development. The processes by which metals are extracted from their ores are either dry, including smelting, volatilisation or amalgamation; wet, when chemical reagents are used for solution of the ores; or electrolytic.

Metaphysics Term denoting, in the animal kingdom, all many-celled animals. Higher than the one-celled animalcules and colonies of independent cells forming the Protozoa, they possess body-cavities and nervous systems, being composed of cells specialised to perform the functions necessary for life and reproduction. They comprise the many-celled invertebrate sub-kingdoms, from the sponges upward through the jelly-fish, sea-urchins, worms and molluscs to the arthropods, culminating in the vertebrate sub-kingdom. Development occurs by means of male and female germ-cells.

Metazoa Term denoting, in the animal kingdom, all many-celled animals. Higher than the one-celled animalcules and colonies of independent cells forming the Protozoa, they possess body-cavities and nervous systems, being composed of cells specialised to perform the functions necessary for life and reproduction. They comprise the many-celled invertebrate sub-kingdoms, from the sponges upward through the jelly-fish, sea-urchins, worms and molluscs to the arthropods, culminating in the vertebrate sub-kingdom. Development occurs by means of male and female germ-cells.

Metempsychosis Belief of ancient origin that the human soul passes through a series of incarnations in a physical body. In its lowest form metempsychosis may imply the passing of a soul into an animal's body, but this view has not been acceptable to more advanced thinkers. In its higher aspect of reincarnation, it was taught by Plato, Pythagoras and other Greek philosophers.

Meteor Small, solid body moving in a regular orbit in space. Meteors usually occur in swarms which, on entering the earth's atmosphere at a great velocity, become incandescent and visible as so-called shooting stars. In November the Leonid Meteors are seen especially at intervals of 33 or 34 years. The Perseids are visible in August and other important streams occur in other months of the year.

Meteorite Metallic or non-metallic body occasionally found on the earth's surface and having its origin in interplanetary space. Meteorites vary in size from small grains to large masses found in Greenland and South Africa, weighing from 50 to 70 tons or more. The metallic kind, or siderites, are composed chiefly of iron and nickel, with some graphite carbon, while the stony kind, or aerolites, are analogous to the ultrabasic rocks of the earth's crust.

Meteorology Science dealing with the study of atmospheric conditions in relation to the weather and climate. It is based upon regular and systematic observations carried out at a number of

stations. Uniformity in recording these observations necessitates a meteorological organisation with a central office where deductions are made and charts drawn up, enabling weather forecasts to be made. These records are concerned with temperature, direction and force of winds, also general weather conditions, and are based upon observation made at the ground level and partly by observation of the condition of the upper atmosphere by means of kites or balloons carrying recording instruments.

Meteorology has become of increased importance owing to the universal use of aviation, and the aeroplane is now a means of gaining direct knowledge of atmospheric temperature. In Great Britain the Meteorological Office is the controlling centre and was founded in 1854 under the supervision of the Board of Trade, but is now under the Air Ministry.

Methane Simplest of the paraffin series of hydrocarbons. It is known also as marsh gas or fire-damp. Its chemical formula is CH_4 , and it is a colourless, odourless gas, which burns with a faintly luminous flame. Methane is a constituent of coal gas and is given off from decaying vegetable matter.

Methodism Term denoting religious communions arising from the 18th-century evangelical revival. It was applied derisively to certain Oxford students, including John and Charles Wesley, who formed a "society" for Bible study and other activities, 1729. John Wesley began evangelical work in London, 1739, instituted lay-preaching, 1741, and in 1744 held a conference of his followers, who became officially "the people called Methodists." Wesley and his helpers took up open-air preaching, and the movement spread apace, especially among the humbler classes.

Immigrant local preachers in N. America, from 1760 onwards, developed a movement resulting in a conference in Philadelphia, 1773. Coke and Asbury were consecrated for this work, 1784; Coke's adoption of the title "bishop" started the American Methodist Episcopal Church.

After Wesley's death, 1791, various offshoots arose which gradually coalesced. An Enabling Act, 1930, empowered the Wesleyan, Primitive and United Methodist Churches to combine as the Methodist Church, 1933. World statistics aggregate about 10,000,000 members, ministers and local preachers, apart from scholars. See BIBLE CHRISTIANS.

Methuen Baron. English title borne by the family of Methuen. In 1709 Sir Paul Methuen arranged a treaty by which Portugal joined Great Britain in the war against France and received in return a market in England for her wine. In 1838 his descendant, Paul Methuen, M.P., a landowner in Wiltshire, was made a baron.

Paul Sanford Methuen, who became the 3rd baron in 1891, was born Sept. 1, 1845, was educated at Eton and became a lieutenant in the Scots Guards in 1864. He served in Ashanti in 1874, in Egypt in 1882, and in 1884-85 raised and led Methuen's Horse in Bechuanaland. Meantime he held appointments on the staff. He was appointed to command a division when the war against the Boers broke out in Oct. 1899, and he was on active service until taken prisoner in March, 1902. From 1903-07 he held a command in England; from 1907-09 he was Commander-in-Chief in S. Africa; from 1909-

15, Governor of Natal, and from 1915-19, Governor of Malta. His honours include the rank of field marshal (1911). In 1920 Lord Methuen was made Governor of the Tower of London. He died Oct. 30, 1932.

Methuselah Character in the Old Testament. A son of Enoch and the grandfather of Noah (Gen. v.), he is said to have lived 969 years.

Methyl Name given to the organic having the chemical formula CH_3 . It does not exist alone, but has many derivatives.

Methyl Alcohol Simplest of the organic compounds having the formula CH_3OH . In its commercial form it is known as wood spirit or naphtha, being obtained by the dry distillation of wood. Like ethyl alcohol, or spirits of wine, it burns with a blue flame and is used as a solvent in varnish-making and in preparing methylated spirit.

Methylated Spirit Form of industrial spirit which has been denatured or rendered unfit for drinking. It consists of a mixture of rectified spirit and wood naphtha or methyl alcohol with addition of pyridine or petroleum. Industrial methylated spirit contains 5 per cent. wood naphtha; pyridinised spirit has in addition 0.5 per cent. pyridine, and mineralised spirit for use in spirit lamps contains 9.5 per cent. wood naphtha, 0.5 per cent. pyridine and 1 per cent. petroleum. See ALCOHOL.

Metre Unit of measurement in the metric system. It was chosen as the supposed ten-millionth part of the quadrant of the earth's meridian, but is now taken as the length of a standard platinum bar in Paris.

Metric System System of weights and measures having a decimal scale of numeration and based upon the metre as the unit. The gram or unit of weight and the litre the unit of capacity are both derived from the metre, and in each set of weights and measures numeration is by powers of ten of the unit.

The following prefixes are used: deca=10, hecto=100, kilo=1000, myria=10,000 and deci= $\frac{1}{10}$, centi= $\frac{1}{100}$, milli= $\frac{1}{1000}$.

The metric system is adopted by most nations owing to its simplicity and ease in calculation; the leading exceptions being Great Britain and the United States.

Metronome Clockwork device for determining the pace of music. In inverted suspension before a wooden box (which is marked with a graduated speed-chart) is a rod kept upright by a bullet. A sliding brass weight causes the rod to make between 40 and 208 oscillations per minute. The modern metronome was the invention of the Dutch mechanician Winkel in 1812, but Maeczel who added the speed-chart, is credited as the inventor.

Metropolis Word used for the chief city of a country. In England the metropolis is London, where some of the organisations and the boroughs are known as metropolitan. The Metropolitan Water Board, set up in 1902, supplies water to some 8,000,000 people in the London area. It consists of 66 members elected by the county councils and other authorities concerned. Its offices are in Rosebery Avenue, E.C.

The police courts in London are called metropolitan, and there are metropolitan police and metropolitan district railways. The Metropolitan Asylums Board existed from 1867 to 1931, when its work was taken over by the London County Council. Its duties were to provide hospitals for infectious diseases, asylums for imbeciles, schools for defective children and so on.

Metropolitan Archbishop or bishop who holds a presiding position. The archbishops of Canterbury and York are metropolitans. The term is also used in the Greek and Roman Catholic churches.

Metternich Clemens Lothar Wenzel, Prince, Austrian statesman. Born at Coblenz, May 15, 1773, he became Austria's Foreign Minister in 1809, and for a period after the end of the Napoleonic wars was "The Master of Europe." A man of iron will but personally kindly, he was without any deep convictions or sympathies. He concluded the Treaty of Fontainebleau and negotiated the marriage of Napoleon and Marie Louise. In 1814 he took a prominent part in the Congress of Vienna, joining with France and Russia against Napoleon. From 1815 he became very powerful and by his founding of the Holy Alliance and consequent suppression of all popular movements contributed largely to the period of revolution in Europe which came to a head in 1848. He lived in retirement from 1849 till his death in Vienna, June 11, 1859.

Metz Town of France, capital of the Moselle department. A Roman fortified town, it was supplied with water by a huge aqueduct, and connected by road with other important centres. It belonged later to the Huns, the Franks and, after a free period under its own powerful bishops, to the French, being strongly fortified by Vauban in 1674. Taken by the Germans in 1870 and made the capital of German Lorraine, it was restored to France in 1919.

The Moselle runs through it, and there are fourteen bridges and ten city gates. The cathedral, built in the 13th and 16th centuries, is mostly Gothic in style. Metz is a great centre of commerce. The chief industries are in shoes, metal-work and the preservation of fruits and vegetables. There is a tobacco factory, also some trade in wine and grain. Pop. (1931) 78,767.

Meuse River of Europe called by the Dutch the Maas. It rises in E. France, not far from Langres and flows past Verdun and Sedan to Givet, where it enters Belgium. It flows then past Dinant, Namur and Liège into the Netherlands. It falls into the Waal, a branch of the Rhine, near Gorkum. The river is 575 m. long, 120 m. being in Belgium and 150 in the Netherlands. The Bar, Sambre and Ourthe are among its tributaries. It is navigable for most of its course, and is linked with other waterways by canals. The Meuse is important from a strategic and a commercial point of view. There was much fighting along its course during the Great War and also in earlier times.

A department of France is called the Meuse. This is a hilly district in the E. Bar-le-Duc is the capital; other places are Verdun and Clermont.

Meux Sir Hedworth. English sailor. Born July 5, 1856, he was a younger son of the 2nd Earl of Durham, and as Hedworth Lambton entered the navy in 1870.

In 1899 he became known for his assistance when commanding the *Powerful* to the defenders of Ladysmith. From 1904-08 he commanded a cruiser squadron; from 1908 he was in charge of the fleet in Chinese waters. From 1912 to 1916, when he retired from the service, he was Commander-in-Chief at Portsmouth. In 1906 he was knighted, and in 1911 he succeeded to the property of Sir Henry Meux and took that name. From 1916-18 he was M.P. for Portsmouth. He died Sept. 20, 1929.

Mevagissey Village and watering place of Cornwall. It is 12 m. from Truro and has a good harbour. It is a fishing station.

Mexborough Market town and urban district of Yorkshire (W.R.). It stands on the river Don, 11 m. from Sheffield, on the L.M.S. and L.N.E. Rlys. The industries are connected with coal and iron. Pop. (1931) 15,856.

Mexico Country extending from the United States of America to Guatemala in Central America. It was annexed by Spain in 1521, remained a Spanish possession for three centuries and then became a republic passing through violent times, intermixed with periods of tranquillity, notably under President Diaz (1876-1880 and 1884-1911).

Mexico is a Federated Republic of 27 states, 1 federal district and 3 territories, with a total area of about 762,800 sq. m. It has a high central plateau bounded by coastal mountains, beyond which the land slopes to the coast. The plateau has a cool dry atmosphere, with large desert areas, and crops need irrigation. The climate in the S. is tropical. The chief industry is mining. The oil products are also famous.

Vast areas are suitable for agriculture, but only a fraction has yet been exploited. The crops include sugarcane, sisal, maize, coffee, cotton, tobacco, cocoa, bananas, olives, rice and chicle, the basis of chewing gum. The valuable forests are almost untouched. Population (1930) 16,404,030.

Mexico City Capital of Mexico, on the central plateau, about 7400 ft. above sea level. Like the old Aztec city, the principal streets lead from a central plaza, with its Parliament House and cathedral. Formerly liable to serious damage by flooding, the city is now adequately drained. It is an industrial centre with many factories and is connected with the United States by rail. It has two broadcasting stations (49.3 and 48.65 M.). Pop. (1930) 908,443.

Meyerbeer Giacomo. French composer. One of the outstanding figures in French Grand and Comic Opera, he was born in Berlin, of Jewish extraction, in 1791. A prodigy pianist at six, he afterwards studied composition in Venice, and settled in Paris, 1826, where he produced his best work, *Robert le Diable* (1831), *Les Huguenots* (1836) and *Le Prophète* (1843). He died May 2, 1864.

Meynell Name of an English family that gives its name to a famous pack of foxhounds. It was founded by Hugo C. Meynell-Ingram about 1846, and hunts a district on the borders of Staffordshire and Derbyshire. The kennels are at Sudbury.

Meynell Alice. English poetess. She was born in 1850, a daughter of T. J. Thompson and a sister of Lady Butler. In 1877 she married Wilfred Meynell, the author and journalist, and won fame by her poems *The Rhythm of Life* and *The Colour of Life*. She compiled one of the best of English verse anthologies *The Flower of the Mind*, and died Nov. 27, 1922.

Mézières Town of France. It stands on the Meuse, 47 m. from Rheims, and is a railway junction. With Charleville on the other side of the river, it forms a municipality. The Germans held it from Aug. 1914, until Aug. 1918, much damage being done when they were driven out. The town, which has been adopted by Manchester and rebuilt, is famous for its defence by the Chevalier Bayard in 1521.

Mezzotint Engraving process in which the design is worked from a dark ground to the high lights. This is done by roughening the surface of the copper or steel plate with a "rocker" tool, giving when inked a deep black surface. The high lights are obtained by scraping and burnishing.

Miami City and pleasure resort of Florida. It is in the south of the state at the mouth of the River Miami and on Biscayne Bay, an arm of the Atlantic Ocean. Owing to its excellent climate, it has become a very popular pleasure resort. In 1926 much damage was done by a hurricane. Pop. 110,600.

Miami is the name of an Indian tribe and of a river in Ohio.

Mica Group of mineral silicates of aluminium and potassium, sodium, lithium, or iron and magnesium, characterised by a pearly lustre and cleavage into thin elastic sheets. The colour varies from white, yellow, green to brown and black. The colourless varieties are used for lamp chimneys and stove doors, also as an electrical insulating material.

Micah One of the Old Testament minor prophets. A contemporary of Isaiah, he prophesied under Jotham, Ahaz and Hezekiah. The Book of Micah contains some Messianic promises.

Michael Name of a "great prince" of the angelic host mentioned in Daniel x. 12. In Jewish theosophy he was a champion of Israel. He is commemorated as a saint on Sept. 29.

Michaelmas Feast of S. Michael and All Angels on Sept. 29, and the day fixed as Quarter Day. Up to 1873 Michaelmas was the first term in law (Nov. 2 to 25).

Michelangelo (Michelangelo Buonarroti). (1475-1564). Italian painter, sculptor, architect and poet. The greatest of the Renaissance artists of Italy. He worked under the patronage of Lorenzo de Medici and Popes Alexander VI., and Julius II. His most famous works include the colossal statue of David, "The Giant," carved in a block of marble, his sculptured figures "Moses" and "The Slaves," his frescoes on the ceiling of the Sistine chapel at Rome, and "The Last Judgment." His verse is ranked among the finest examples of Italian poetry.

Michelsen Albert Abraham. American scientist. Born at Strolno, Germany, Dec. 19, 1852, he was educated at the U.S. Naval Academy, 1873.

Leaving the navy he studied in Germany and France, 1880-82, and became professor of physics at the Case School, Cleveland, 1883. While here he invented his Interferometer. In 1889 he became professor of physics at Clark University, and in 1892 at the University of Chicago. In 1926 he was appointed distinguished service professor at Chicago. He received the Nobel Prize for Physics in 1907. With E. W. Morley he conducted an experiment to determine the effect of the earth's motion on the velocity of light (1887). In 1925 he repeated this test, both results being negative—fundamental experiments upon which was based Einstein's Theory of Relativity. See ETHER; LIGHT; RELATIVITY.

Michigan State of the United States. In the north of the country, it consists of a peninsula between Lakes Michigan and Huron. Nearly 40,000 sq. m. of water belong to it and it has a coastline of 1600 m. on Lake Michigan. The land area is 57,480 sq. m. Lansing is the capital, but Detroit is much the largest city. Other populous centres are Grand Rapids and Flint. The state is governed by a legislature of two houses and sends two senators and 13 representatives to Congress. It is chiefly an agricultural area, but a great deal of copper is mined. Pop. (1930) 4,840,000.

Michigan Lake of the United States. It covers 22,450 sq. m. and is the only one of the Great Lakes wholly within the United States. Chicago and Milwaukee are lakeside cities. There is little navigation since the lake is subject to violent storms and lacks good harbours, but its fisheries are valuable.

Micrograph Instrument of the nature of a pantograph used for producing very small writing or drawings; also a minute drawing.

Micrometer Instrument used for accurately measuring very small spaces. It takes many forms, the commonest being the screw micrometer in which a screw with a very small pitched thread is provided with a large graduated head and suitably mounted. The movement of the screw during a complete rotation is equal to the pitch of the thread, smaller measurements being determined from the graduated head. Special forms of micrometers are used in telescopes and microscopes.

Microphone Electrical instrument for intensifying sound. The three chief types are the carbon or contact microphone used in telephony, the electrodynamic or magneto phone, and the electrostatic or condenser microphone. The action of the carbon type depends upon the varying electrical resistance between carbon particles, contained between two carbon discs upon which the sound waves impinge.

Microscope Optical instrument used for examining minute objects by magnification. The name is usually applied to the compound type consisting essentially of a rigid stand carrying a stage for supporting the object; beneath the stage is a movable mirror for illuminating the object and above is a tube carrying the lenses.

The Royal Microscopical Society, founded in London in 1839, was established to foster microscopical science.

Midas In Greek legend a king of Phrygia. He asked that all he touched might turn to gold and his wish was granted; when even his food became gold he employed

relief, and gained it by bathing in the River Pactolus.

Middelburg Town of the Netherlands. The chief town of the province of Zeeland, it stands on the island of Walcheren, 4 m. from Flushing. The town hall is a fine 16th century building. Middelburg was formerly a centre of the cloth trade and has some manufactures. Pop. 19,000.

Middelburg Town of the Transvaal. It is 95 m. from Pretoria, on the railway to the port Lourenço Marques, 284 m. away. Near are coal mines. It is the business centre of a large district. Pop. (white) 2274.

Another Middelburg is a town of Cape Colony. It is 250 m. from Port Elizabeth and is the centre of a farming district.

Middle Ages Term used for the period between ancient and modern history. It is usually regarded as beginning at 476, when the last Roman Emperor was deposed in Italy. Its end may be either the capture of Constantinople by the Turks in 1453 or the discovery of America in 1492.

Middleham Village of Yorkshire (W.R.). It is 2 m. from Leyburn and is famous for the ruins of its castle, one of the strongest fortresses in England, long a seat of the Neville family. There are racing stables in the village.

Middlesbrough County borough, and seaport of Yorkshire (N.R.). It stands on the Tees, 238 m. from London, on the L.N.E. Ry., and was founded early in the 19th century. The chief industries are the production of iron, steel, chemicals and ship-building. There is a fine harbour with extensive docks in the river. A transporter bridge crosses the river here. Pop. (1931) 138,489.

Middlesex County of England, the smallest in the country, but densely populated. It covers 239 sq. m. and much of the area is in the London district. Brentford is the county town; other boroughs are Acton, Ealing, Hounslow and Twickenham; the urban districts of Willesden, Edmondson, Enfield, Finchley, Southgate and Tottenham are also in the county. In 1932 the urban districts of Hendon and Heston were raised to the rank of boroughs. It is divided from Surrey by the Thames and from Essex by the Lea. The Colne and Brent are other rivers. Pop. (1931) 1,638,521.

The Middlesex Regiment, consisting of the old 67th and 77th Foot, raised in 1755 and 1787 respectively, has a long record of service and fought in the Great War. They are known as "The Die-hards" from their conduct at Albuera (q.v.).

Middleton Borough and market town of Lancashire. It is 6 m. from Manchester, on the L.M.S. Ry. There are cotton mills, engineering and chemical works. Pop. (1931) 29,189.

Middleton Thomas. English dramatist. Born in London about 1870 he studied law. In 1920 he was made city chronologer and he died in 1927. He is known as the author of several once popular plays, notably *A Trick to catch the Old One*, *A Mad World My Masters*, *Women beware Women* and *A Game at Chess*. In collaboration with Rowley he wrote *The Changeling*, *The Spanish Gypsies* and *The Old*

Law, and collaborated with Thomas Dekker in *The Honest Whore* and *The Roaring Girl*. Middleton wrote for some years the pageants for the Lord Mayor's Show.

Middleton -in-Teesdale. Market town of Durham. It stands on the Tees, on the L.N.E. Rly. Around are coal mines. Pop. 1977.

Middlewich Borough and market town of Cheshire. It is on the River Dane, 6 m. from Northwich, on the L.M.S. Rly. The chief industry is the extraction of salt; there are also chemical works. Pop. (1931) 5458.

Midge Name denoting indiscriminately two-winged insects of various families. The typical plumed midge, *Chironomus plumosus*, swarms in the summer air, its short, soft, non-piercing proboscis distinguishing it from gnats; its larvae are colloquially called blood-worms. The black midge which bites the hand is a *Ceratopogon*. Some, e.g., the pear-midge, are destructive.

Midhurst Market town of Sussex. It is 12 m. from Chichester and 64 from London, with a station on the S. Rly. Near are the ruins of Cowdray Castle. Midhurst was once a borough. Pop. (1931) 1890.

Midi District of France. It is the region around Toulouse and owes its name to the fact that this was once a middle land between France and Spain. The Canal du Midi, 148 m. long, constructed between 1686 and 1681, extends from Toulouse to the Mediterranean Sea, near Warboune.

Midian Arabian region E. of the Akabah Gulf, anciently occupied by the Midianites. Some were caravan traders, some pastoral nomads. They made predatory excursions into Canaan until Gideon defeated them.

Midlands Name used for the midland counties of England. The district lies between the Thames and the Trent, and between East Anglia and the counties on the border of Wales. It includes the counties of Nottingham, Derby, Stafford, Leicester, Rutland, Northampton, Warwick and Worcester.

The Midland Regional programme of the British Broadcasting Corporation is run on a wave-length of 398.9 M., 25 kW.

Midleton Earl of. English politician. Born Dec. 14, 1856, St. John Brodrick, was the eldest son of the 8th Viscount Midleton, the holder of an Irish title dating from 1717. In 1880 he was elected M.P. for Surrey and represented a division of that county until 1907, when he became a peer. In 1886-92 and again, 1895-1900, he held office in the Unionist Government and in 1900 became Secretary for War. From 1903-05 he was Secretary for India. He was created an earl in 1920. The earl lives at Piper Harrow, near Godalming, his eldest son being styled Viscount Dunstond.

Midlothian County of Scotland. It covers 370 sq. m. and has a short coastline on the Firth of Forth. In it are the Pentlands and other ranges of hills. It contains Edinburgh, Leith, Dalkeith, Musselburgh and Penicuik, and such romantic spots as Roslin and Hawthornden. Its rivers are the Water of Leith, Gala, Almond and other short streams. The title of Earl of Midlothian has been borne by the Earl of Rosebery since 1911. Pop. (1931) 526,377.

Midnight Sun Term applied in relation to the fact that the sun is visible within the Arctic Circle during the whole 24 hours at midsummer. This is principally due to the obliquity of the earth's axis. During the season when the North Pole is inclined towards the sun, the day lengthens as one approaches the North Pole.

Midshipman Junior officer of the British navy. A naval cadet on passing out of the college at Dartmouth becomes a midshipman when his training is continued on board ship. He messes in the gun-room and commands small parties of men. His rank is shown by a white tab on the collar of the jacket and he wears a dirk.

Midsomer Norton Urban district of Somerset. It is 12 m. from Bath, on the G.W. Rly., and stands on the little River Somer. The chief industry is coal mining. Pop. (1931) 7490.

Midwife Women who attend during childbirth. The profession is a very old one and until recently could be practised by anyone. Now, however, in Great Britain all midwives must be certificated. The Central Midwives Board at 1 Queen Anne's Gate Buildings, London, S.W., grants the certificates and has power to revoke them. There is a separate board for Scotland at 49 George Square, Edinburgh.

Midwifery Properly speaking, the term covers the study and supervision of the whole reproductive cycle in man and is synonymous with obstetrics (q.v.). In terms of general reference, however, midwifery is confined to the attendance on mothers during childbirth and hence to the profession of midwifery as practised by women trained to assist in and supervise delivery. It therefore falls under the province of nursing (q.v.).

MIDWIFERY AS A CAREER.—Midwifery offers scope to the woman who takes up nursing too late in life to obtain a general hospital training, though here as elsewhere such a training would stand her in very good stead. The status of the midwife is much improved since the passing of the Midwives' Acts in 1902 and 1918, enforcing compulsory registration and training. The course is a twelve-months' one (or six months for a general nurse) and a certificate is given by the Central Midwives Board, Queen Anne's Gate Buildings, Westminster, London. Training can be had at any Maternity or Lying-in Hospital recognised by the Board, to whom application for particulars should be made.

Mignonette Genus *Rosa* of annual herbs of the order *Rosaceae*, natives of the Mediterranean region and W. Asia. The fragrant *R. odorata*, which reached Chelsea from Egypt, 1752, has become a favourite garden plant, developed into compact forms, with giant pyramidal white, red and golden heads, as well as dwarf and double-flowered varieties. Tree-mignonette, developed by gardeners, is a short-lived perennial form. The two British and several European species, including the white mignonette, are scentless.

Migraine Word derived from *hemi-crania*, a neuralgic pain usually beginning or predominating on one side of the head. It is also called sick-headache. Sometimes occasioned by stomach disturbance and eyestrain, it may recur periodically, and

be attended by numbness, visual disturbances, excessive sensitiveness and vomiting, lasting several hours or the whole day.

Migration Periodic mass-movement of animals, especially birds, from one seasonal habitat to another and back again. The primary stimulus is the food-quest. Conditions in the S. hemisphere have not been closely studied; in the N. hemisphere most birds exhibit mass-movements between summer quarters for nesting and breeding and winter quarters for feeding and resting. Britain has summer visitors for breeding, winter visitors from northern breeding places, birds-of-passage, partial migrants of whom some remain, and non-migratory residents. Birds invariably breed in the colder area of their range; those breeding in the tropics sometimes make vertical but never horizontal migrations. The collective movement is remarkably uniform, punctual and constant in direction.

Mikado Sovereign of Japan. The Japanese do not use this title, preferring to call their ruler *tenshi*, or the son of heaven. The *Mikado* is the name of one of Gilbert and Sullivan's most popular operas. It was first produced in 1885.

Milan City of Northern Italy. Situated on the River Olona in the Lombard plain, it is the capital of the province of the same name. Historically it's one of the most interesting of the Italian cities, with many famous and beautiful buildings. These include the cathedral, which took nearly five centuries to complete; the church of San Ambrogio; the Castello Sforza, and the monastery of Santa Maria delle Grazie, where Leonardo painted his "Last Supper" on the refectory wall.

Milan is equally important commercially and financially. Silk is the principal manufacture. Others include machinery, embossed leather, etc. It has a broadcasting station (331.5 M., 7 kW.). Pop. (1931) 976,000.

The Duchy of Milan was very powerful in the Middle Ages. It was held first by the Visconti family, then by the Sforzas, and was later in the hands of the Spanish crown.

Mildenhall Market town of Suffolk. It is 72 m. from Bury St. Edmunds and 76 m. from London, on the little River Lark, and is served by the L.N.E. Rly. The market cross and the manor house are notable. Pop. 3376.

Mildew Term applied to a group of epiphytic and parasitic fungi belonging to the *Erysiphaceae*. It is popularly used for moulds and allied types. The mildew fungus forms a cobweb-like mycelium on plants while haustoria or suckers penetrate the epidermis of the host. Both summer spores and winter spores are formed, the latter being set free in the following spring. *Erysiphe tuckeri*, the mildew of the grape-vine attacks the leaves and fruit doing great damage to the vine.

Mile English measure of length. The statute mile is 1760 yards, but in former days it varied very much in different parts of the country. The nautical mile consists of 202½ yards. The mile is divided into eight furlongs. It originated with the Romans, being 1000 (mille) paces, or about 1610 yards.

Mile End District of London. It is in the borough of Stepney and gives its name to the great thoroughfare known as Mile End Road, connecting Whitechapel Road and Bow Row. In Mile End are the

People's Palace, the East London College, the Great Assembly Hall, St. Benet's Church and Trinity Hospital.

Miletus Ancient city and seaport of Asia Minor. Traditionally it was founded by Miletus, a son of Apollo, and it became one of the greatest of the Greek cities of Asia Minor. In 494 B.C. Miletus headed the other Greek cities of this region in their revolt against the Persians, but this resulted in its destruction. Being rebuilt it was destroyed by Alexander the Great, after whose time it was a Roman city.

Milford Seaport and urban district of Pembrokeshire, standing on Milford Haven, 9 m. from Haverfordwest, on the G.W. Rly. There is a good harbour and the port is a fishing centre. The town was founded in 1790 to serve as a station for the navy, but this was later moved to Pembroke Dock. Pop. (1931) 10,116.

Milford Haven Opening of the Atlantic Ocean on the coast of Pembrokeshire. It is 10 m. long and is one of the finest harbours in Great Britain. The East and West Cleddau rivers flow into it and on it are Milford and Pembroke Docks. St. Ann's Head, on which is a lighthouse, guards the entrance to the harbour.

The title of Marquess of Milford Haven was given in 1917 to Louis, Prince of Battenberg. Born in Austria, May 24, 1854, he became a British subject and entered the navy. He was Director of Naval Intelligence, 1902-05, Commander-in-Chief of the Atlantic Fleet, 1908-10 and First Sea Lord of the Admiralty, 1912-14. He died Sept. 11, 1921.

Military Cross (M.C.). British decoration. It was founded in 1915 and is given to military officers not higher than the rank of captain for services in action. The badge is a silver cross and the ribbon is white, purple and white.

Military Medal (M.M.). Decoration given to non-commissioned officers and men of the British army for bravery under fire. Women are also eligible. Instituted in 1916 it is a silver medal. On the reverse side are the words "for bravery in the field" surrounded by a wreath with the royal cipher and a crown above.

Military Knights of Windsor. Body of officers attached to the Order of the Garter. They were at first known as Poor Knights and ranked below the ordinary knights. They are appointed by the king, being wounded or disabled officers of high rank and they occupy quarters in Windsor Castle. Their number is 13.

Military Law Law governing military forces. In Great Britain, the Army Act, passed annually, includes the penal code for discipline in the army, administrative laws and provision of maintenance. Matters of discipline, in addition to the act, are governed by rules of procedure in the King's regulations and in royal warrants.

Militia Name given to a military force raised in Great Britain until 1908. It was raised in the counties by the lord lieutenants, the men undergoing one month's training each year, for which they received payment. The militia was formed when the country was threatened with invasion. It was called out in 1716 and 1745. During the several wars with France, 1759-62, 1778-83, 1792-1802 and 1803-16; during the Crimean

War, 1854-55; and during the struggle with the Boers in 1899-1902. After 1757, each parish was obliged to furnish men, drawn by ballot, for the militia, but persons on whom the lot fell could pay a substitute. Not being available for foreign service some of them went as volunteers in 1899. In 1907 the militia was merged in the Territorial Force.

Milk Fluid secreted in the mammary glands for the nourishment of the young animal. It is of the nature of an emulsion, minute fat globules being held in suspension in a liquid which consists of water containing, in solution, albuminoids, lactose and mineral salts. Cow's milk consists of about 87 per cent. water, 3.5 per cent. fat, 3.0 per cent. albuminoids, 4.5 per cent. lactose or milk sugar, and 0.7 per cent. ash. In skim milk 90 per cent. is water and in whey about 93.5 per cent. In condensed milk much of the water has been evaporated in a partial vacuum at a comparatively low temperature. Under the Food and Drugs Act milk exposed for sale must conform to a certain standard and must not contain preservatives or colouring matter.

Milkwort Large genus of temperate and tropical perennial herbs typical of the milkwort family (*Polygala*). The common British *P. vulgaris*, formerly supposed to increase the milk-yield in cows, has wiry stems, leathery leaves and small flowers. Several showy Cape species are cultivated. The British sea-milkwort, *Glauz maritima* is of the primrose family.

Milky Way Name given to the starry belt seen on a clear night. It stretches as a luminous band across the sky, especially in autumn, when it stretches east and west close to the zenith. With the aid of the telescope it is seen to consist of a dense belt of stars, but not uniform, however, as dark channels and spaces occur usually near the brighter areas. In the vicinity of Alpha Centauri the Milky Way divides into two branches which reunite near Eta Cygni.

Mill John Stuart, English economist, publicist and philosopher. Born May 20, 1806, he was the son of James Mill, the founder, with Jeremy Bentham, of the Utilitarian philosophy. He entered the India Office and became the foremost exponent of Utilitarianism, but later adjusted his views on more altruistic lines. He did much for the poor, and advocated universal suffrage and franchise. He died May 8, 1873. Mill wrote a *System of Logic*, *On Liberty*, and *Principles of Political Economy* amongst other works.

Millais Sir John Everett, English artist. Born at Southampton in 1829, Millais was one of the founders of the Pre-Raphaelite Brotherhood. At an early age he entered the Royal Academy Schools and developed remarkable artistic power and technical skill. His early painting, "Christ in the Carpenter's shop" (Tate Gallery) is his best, and other important pictures are "Lorenzo and Isabella" (Liverpool), "Ferdinand and Ariel" (Tate Gallery) and "Ophelia" (National Gallery). In 1885 he was created a baronet and in 1896 became president of the Royal Academy. He died Aug. 13, 1896.

Millbank District of London, in the city of Westminster by the side of the Thames. The chief buildings are the Tate Gallery, Queen Alexandra's military hospital and the Royal Army Medical College

and barracks. Between 1812-22 a prison was built here in the shape of a wheel, surrounded by a moat. It was used for various purposes and, in 1903, was pulled down. The site is now occupied by the Tate Gallery. Imperial Chemical Industries have erected large offices here, and another large block is known as Thames House.

Millboard Stout form of cardboard used for bindings, box-making, etc. It is made from various waste fibres and papers. Hemp and flax waste are used for the best grades, waste paper for the lower qualities, and a percentage of pulped leather for leather boards.

Millennium Mediaeval Latin word denoting especially a period when, according to long expectation, Christ would return to govern the earth for a thousand years. It is based upon apocalyptic literature, e.g., Daniel and Revelation.

Millerand Alexandre, French lawyer 10, 1859, he became editor of Socialist papers, was elected to the Chamber of Deputies as a Radical Socialist in 1885, and was active in military organisation and the suppression of strikes. At the end of August, 1914, he became Minister for War, and in 1919, as Commissaire Général in Alsace Lorraine, was successful in re-organising these districts under French government. He was elected President of the Republic in 1920, and kept a firm hold on foreign affairs. He was succeeded by Doumergue in 1927.

Milles Carl, Swedish sculptor. Born at Stockholm in 1875, and educated at Stockholm and Paris, he was for a time Professor at the Royal Akademie at Stockholm. He teaches sculpture at the University of Cranbrook, Michigan, U.S.A. His work is represented in the principal galleries of Europe and America.

Millet General name for many cereal grasses. Common millet, *Panicum mitaceum*, and little millet, *P. miliare*, are grown largely in India for food purposes. Italian millet comes from *Setaria italica*. German millet being a dwarf variety. Pearl millet, *Pennisetum glaucum*, grows in tropical Africa, India and S. Europe. See INDIAN MILLET.

Millet Jean François, French painter. Born at Groville in Normandy, in 1814, Millet was the son of a peasant farmer and showed a natural aptitude for drawing. The town of Cherbourg paid for him to study in Paris under Delaroche. In 1849 he settled at Barbizon and became famous for his paintings of peasant life, his works including "The Angelus," "The Sowers," and "The Gleaners." He died Jan. 20, 1875.

Mill Hill Residential district of London. It is 8 m. N.W. of the city, on the L.M.S. and L.N.E. Rlys., in the urban district of Hendon.

Mill Hill School, founded in 1807 for the education of the sons of Nonconformists, has a fine range of buildings and accommodation for about 600 boys. The Society of Jesus have a college at Mill Hill.

Milling Term applied to the process of grinding corn and other material by steel rollers. It is also used for a process in engineering works by which metal parts are planed to true surfaces. In relation to coinage milling refers to the indenting of the rim of coins to prevent slipping or filing.

Millipede Order of the arthropod class *myriopoda*. Allied to the centipedes, the millipedes closely resemble the insects in having air-tubes or tracheae opening on the surface by stigmata. The body is long, rounded and segmented, each segment, with the exception of the first four, bearing two pairs of legs.

Millom Urban district and market town of Cumberland. It stands on the estuary of the Duddon, 9 m. from Barrow-in-Furness, on the L.M.S. Rly. The town is a centre of the iron and steel manufacture. At one time it had a castle, of which some ruins remain. Pop. (1931) 7406.

Millport Burgh and watering place of Bute-shire. It is on the island of Great Cumbrae and is reached by steamer from the Clyde ports. Here is the cathedral for the Roman Catholic diocese of Argyll and the Isles, and there is a marine biological station. Pop. (1931) 2083.

Millwall District of London. It is on the north side of the river, in the Isle of Dogs and the borough of Poplar. It contains large docks and has facilities for unloading and storing grain.

Millwall Athletic is a famous association football club. The ground is at New Cross Gate, London, S.E.

Milne Sir George Francis. English soldier. Born Nov. 5, 1856, he entered the army as an artillery officer in 1885. He served in the Sudan in 1898 and in South Africa, 1899-1902. In Aug., 1914, he commanded the artillery of a division in France and was soon promoted, being in turn chief staff officer of an army, leader of a division and head of an army corps. In 1916 he went to Salonica and commanded the British forces for the campaign that ended in the defeat of Bulgaria. From 1923-26 Milne had a command in England and from 1926-29 he was Chief of the Imperial General Staff. He was knighted in 1918, made a general in 1920 and a field-marshal in 1928.

Milner Viscount. British statesman. Born March 23, 1854, at Bonn, he was educated in Germany and at London and Oxford. He became a barrister, was private secretary to the Chancellor of the Exchequer and in 1889 was given a post in Egypt. As Sir Alfred Milner he was made Governor of the Cape of Good Hope and High Commissioner for South Africa in 1897. He was responsible for the negotiations that preceded the outbreak of war with the Boers in 1899 and his actions at that time were severely criticised. He helped to arrange the peace of 1902 and was made Governor of the annexed areas, the Transvaal and the Orange Free State. In 1905 he retired, having been made a baron in 1901 and a viscount in 1902. In 1916 he was made a member of the war cabinet and he helped to direct the final operations against Germany. In 1918 he was made Secretary for War and in 1919 Secretary for the Colonies. He left office in 1921 and died, unmarried, May 13, 1925. Of his books the best known is *England in Egypt*.

Milngavie Town of Stirlingshire. 6 m. from Glasgow, it is the terminus of a branch railway line. Near are some waterworks that supply Glasgow. Pop. 5056.

Milnrow Urban district of Lancashire. It is 2 m. from Rochdale and is a coal mining centre. Pop. (1931) 8624.

Milnthorpe Market town and river port of Westmorland, on the River Kent, 7 m. from Kendal. It has a coasting trade and is a summer resort. Pop. 1025.

Milo Titus Annlus. Roman official. His fame is due to his connection with Cicero. In 57 B.C., when he was tribune, he brought about the return of the orator from exile. Later, following a quarrel which brought about the death of one Clodius, Milo himself was sent into exile. He was killed in a fight in 48 B.C. Cicero's speech in defence of Milo, *Pro Milone*, is a popular piece of classical prose.

Milreis Brazilian coin. It is worth about 6d. and is issued in silver and paper. It contains 1000 reis. The coin was formerly used in Portugal.

Miltiades Athenian tyrant who was responsible for the battle at Marathon against the Persians. This victory, 490 B.C. was one of the decisive battles of the world. Miltiades attacked the island of Paros to regain control of the Aegean, but was defeated, and on failing to pay a fine of fifty talents, was cast into prison, where he died, 488 B.C.

Milton Name of several places in England. **Milton-next-Sittingbourne** is a market town and urban district in Kent. It is 10 m. from Chatham and is reached by the S. Rly. Another is a little watering place in Hampshire, 6 m. from Lymington. Another is a village, 4 m. from Cambridge.

Milton Creek, an arm of the Swale, is famous for its oysters. Paper is made here.

Milton Abbas is a model village, 7 m. from Blandford in Dorset. There was once an abbey here and the fine church still stands.

Milton Park, near Peterborough, is a seat of the Fitzwilliam family.

Milton John. English poet. Born in London, Dec. 9, 1608, he was educated at S. Paul's School and Christ's College, Cambridge. His early poems, *L'Allegro*, *Il Penseroso* and *Lycidas*, a lament for the death of his friend, Edward King, show the influence of country life, as well as the classical learning and the beauty of language that mark his later works. *Lycidas* is one of the most beautiful elegies in the English language. To this period also belongs the masque of *Comus*, performed at Ludlow Castle in 1634.

After a tour abroad Milton turned to politics and prose writing. His prose works are largely theological in character, for he was a strong Puritan controversialist. *Areopagitica* is the greatest plea for liberty of speech in the English language. In the Civil War Milton espoused the Parliamentary cause; in 1649 he became Latin secretary to the Commonwealth, and in 1655 secretary to Cromwell. The blindness which fell upon him about 1652 led to the writing of the best known of his sonnets, *On his Blindness*.

At the Restoration, he retired from public life and wrote *Paradise Lost* and *Paradise Regained*. The greatness of its theme, the fall of man, as well as the stately beauty of its verse, makes *Paradise Lost* one of the great poems of the world, and places Milton as second only to Shakespeare among English poets. *Samson Agonistes*, his last poem, was written three years before his death, Nov. 8, 1674.

Milwaukee City and port of Wisconsin, United States. It is on the western shore of Lake Michigan where it has a good harbour, 85 m. from Chicago.

The River Milwaukee and its tributaries flow through the town before entering the lake. Milwaukee is a great distributing centre. Other industries are flour milling and tanning. Pop. 578,249.

Mimeograph Form of flat stencil duplicator for making numerous copies of a document. A wax stencil is made on a typewriter, or otherwise, placed over a sheet of paper when, by passing an inked roller over the stencil and paper a facsimile is obtained.

Mimosa Large genus of leguminous plants, natives of the warmer regions of Africa, Asia and America. The leaves, twice divided into leaflets, are in many species sensitive, closing when touched, e.g., the Brazilian *M. pudica*, frequently cultivated in greenhouses. The so-called mimosa, popular in Covent Garden market, is actually a half-hardy *Acacia*.

Mimulus Cultivated variety of musk (*Mimulus moschatus*) of the order *Scrophulariaceae*. It is both annual and perennial, with large blooms in yellow, golden brown and variegated shades.

Min Egyptian god. He was a god of fields and highways, but later he became merged in Anmon.

Mina (or Mynah). Name of various birds of the starling family, inhabiting India and S.E. Asia. One, *Acridotheres tristis*, regarded by Hindus as sacred to Ram Joo, is often confused with a hill-mina, *Gracula religiosa*, 10 in. long, with purplish-black plumage and yellow bill and feet.

Minaret Tall slender balconied tower on a mosque. From it at stated times the Muzzelin chants the azan, or Mohammedan call to prayer, to the people.

Minchinhampton Town of Gloucestershire, 4 m. from Stroud. Minchinhampton Common (660 ft. high) is one of the beauty spots of the Cotswold Hills.

Minden City of Germany. It is on the Weser, 44 m. from Hanover, in the district called Westphalia. The cathedral is a fine building with some valuable treasures. The place has some manufactures. In the Middle Ages the Bishop of Minden was a prince bishop ruling over a territory of 400 sq. m. Pop. 27,000.

Near Minden on Aug. 1, 1759, a British and Hanoverian army defeated the French. The battle is memorable for the advance under fire of six British infantry regiments, since known as the Minden regiments.

Mine Excavation for extracting from the earth metallic ores and other mineral substances of economic importance. The character of the mine varies greatly with the nature and position of the deposits. In some cases the mine is an open quarry-like excavation, in others horizontal passages or adits are driven into a hill, or again, deep vertical shafts with a complex system of galleries are sunk, needing provision for ventilation and drainage.

Mine Explosive engine used in warfare. A land mine usually consists of a charge of high explosive buried in the ground, capable of being discharged either by pressure upon it or by electrical means. In naval warfare a mine consists of an explosive charge contained in a metal case provided with projecting detonators which fire the mine when touched by a vessel. Numbers are usually laid

some distance below the surface and near one another, forming a mine field.

Minehead Urban district of Somerset. It is on the Bristol Channel, 25 m. from Taunton, on the G.W. Rly. There is a small harbour. North Hill overlooks the town. It is a tourist centre, being near Exmoor. Pop. (1931) 6315.

Mineralogy Study of the mineral constituents of the earth's crust. The term minerals being applied strictly to inorganic substances which have been formed under conditions unconnected with organic agencies, thus excluding coal, petroleum, amber, etc. Mineralogy as a science has only developed during the last 150 years and in its modern form is linked on to chemistry, physics, geology and crystallography, and includes the study of the form, chemical composition, specific gravity, hardness, cleavage, fracture of minerals and their behaviour in relation to light.

Mineral Waters Name given to the water of springs containing a high percentage of mineral salts in solution, used on account of their medicinal qualities. Mineral waters may be alkaline or saline, sulphurous or chalybeate. In England the waters at Bath, Harrogate and Buxton are well-known. Among the many Continental springs, those at Baden-Baden, Aix-les-Bains, Spa, and Carlsbad are much frequented. In some cases the waters are bottled and exported, and under the name of mineral waters are included artificially prepared aerated waters.

Minerva Italian, perhaps Etruscan, deity. The patroness of all arts and handicrafts, she shared with Jupiter and Juno Rome's worship in Tarquin's temple on the Capitol. Her own temple was on the Aventine. Identified with the Greek Pallas Athena, she became the goddess of war, a victor's spoils were dedicated to her. See PALLADIUM.

Miniature Term in Art applied to a small painting upon vellum, parchment, ivory or other materials. The word is derived from minium or red lead used in writing the rubrics or initial letters in old manuscripts. Much of the early miniature painting was done on missals, etc., as a branch of illuminating and very fine work was done by Italian, French and Flemish artists. Painting on ivory came into vogue about the 17th century and in England Hilliard, in Queen Elizabeth's reign, and Samuel Cooper, a contemporary of Van Dyck, executed fine miniatures. In France this branch of Art was represented by Isabey and Augustin in the 18th century.

Minimum Wage Wage fixed by law as the lowest that may be paid. The principle of the minimum wage, operative in Australia and New Zealand, has never been put into general practice in Great Britain, though it has been introduced in certain industries. Under the Corn Production Act from 1917 to 1921 a minimum wage was guaranteed to agricultural labourers. In those industries which have a trade board minimum rates of wages are fixed by the board. Minimum wages are fixed to-day for agricultural labourers by joint committees and for coal miners. The trade unions also have their minimum rates of wages, but these are not compulsory.

Mining Art of extraction of metallic ores and mineral substances of

economic value from the earth, also the methods of prospecting or searching for minerals. Prospecting entails some knowledge of the principles of geology, and a close acquaintance with mineralogy and some practical knowledge of chemical analysis. In the development of mines much of the work falls under mining engineering and many questions have to be considered, such as the continuity of the lode, proximity of water and fuel, available means of carriage, etc. Within recent years low grade deposits, hitherto unworked, have been exploited by special mechanical methods and found profitable.

In mining, diverse methods are followed according to the character of the ore deposit; in surface mines excavators, steam navvies and hydraulic jets may be used, while in deeper mines mechanical haulage is needed for transport of material. Another department of mining is concerned with ore dressing, involving the crushing of the ore by hand, stamps or other grinding machinery. The final stage in ore dressing is that of concentration of the material to obtain the requisite degree of purity preparatory to smelting.

Mink (*Putorius*). Name of several semi-aquatic carnivorous mammals of the weasel family. Comprising the European mink or marsh-otter, the Siberian, and the American vison, they are trapped for their furs, the finest coming from Nova Scotia. They are also bred in minkeries for use as ferrets. All emit a disagreeable odour.

Minneapolis City and river port of Minnesota. It stands on the Mississippi, 360 m. from Chicago. It covers 53 sq. m. There are many open parks and in one of them are the Falls of Minnehaha, popularised by Longfellow in *Hiawatha*. In the river near the city are the Falls of St. Anthony which are used to generate electricity. Minneapolis is a great trading centre, especially in wheat. The industries include enormous flour mills, meat packing factories and machinery works. On the other side of the Mississippi is St. Paul, the two being known as the twin cities. Pop. (1930) 464,356.

Minnesingers Name given to a class of poets who lived mainly in Germany in the later Middle Ages. They were not unlike the troubadours. Men of good family, they lived at the courts of the princes, composing and singing lyrical verses and the attendant music. They were popular about 1150 to 1250 chiefly in Bavaria and Austria. Competitions were held by them, such as the one described by Wagner in *Tannhäuser*. The most famous of the singers was Walther von der Vogelweide.

Minnesota State of the United States. One of the north central states, it lies to the west of Lake Superior and has Canada for its northern boundary. It covers 84,682 sq. m. and is chiefly an agricultural area, but a great deal of iron ore is mined and there are some great industrial centres. St. Paul is the capital, but Minneapolis is larger. Another city is Duluth. The government is conducted by a legislature of two houses. Pop. (1980) 2,664,000.

Minnow Small freshwater fish of the carp tribe (*Leuciscus phoxinus*) common in British and European rivers and brooks. Normally 3-4 in. long, sometimes 7 in., it is dark-green, with black patches along the interrupted lateral line.

Minor Person under 21 years of age. In English law he or she is unable to enter into a contract. See INFANT.

Minor Name meaning "lesser," applied in music to all intervals one semitone less than major intervals (See MAJOR). A diatonic scale progresses in tones but with semitones between the 2nd and 3rd, 5th, 6th, 7th and 8th, and with an augmented 2nd between the 6th and 7th degrees is in the minor mode; so is the variant with the raised 6th.

A minor semitone is a chromatic semitone. The minor tone in acoustics is that in the ratio 10 : 9.

Minorca One of the Balearic Islands. It covers about 290 sq. m. Fort Mahon is the capital. The surface is hilly, but the soil is fertile, and tropical fruits, such as figs and oranges, are grown. It also produces wine and there is some mining. Horses and cattle are reared. On the islands are some remains of early man and some stalactite caves. Pop. 42,000.

A breed of fowl is known as the Minorca. They lay large eggs, but are bad sitters.

Minorites Name taken by the Franciscan friars. It was adopted because they regarded themselves as minors, or inferior to members of other orders. About 1212 a female branch was founded by St. Clara. They were called *Minoresses*, but are now known as Poor Clares. They had a house in the Minories, London, hence this name.

Minorities Groups of people which differ by race or religion from the nation of which they form a part. Sometimes these minorities become absorbed into the majority, but they often aspire to an independent life, either wishing to develop their own traditions, or demanding administrative autonomy. Since the World War, minorities have had the same legal rights as the nationals of their country, free exercise of their religion and their mother tongue, and the right to maintain their own schools and charitable institutions. If any of these rights are violated they can appeal to the League of Nations for redress.

Minos Legendary king of Crete. The son of Zeus by Europa, he was a great ruler, who gave good laws and made his kingdom powerful. After his death he was made one of the judges in Hades. It is probable that there was really a king of Crete named Minos and that the labyrinth at Cnossus was his palace.

Minotaur In Greek mythology, a fabulous Cretan monster, half-man, half-bull. It was represented as the offspring of a white bull and Pasiphaë, wife of King Minos. Kept in a labyrinth, it was fed on human flesh, until slain by Theseus. See CNOSSUS.

Minster Village of Kent. It is in Thanet, 4 m. from Ramsgate, on the S. Rly. There is an old and beautiful church and the place once had a religious house.

Minster Village of Kent, on the Island of Sheppey, 4 m. from Sheerness. At one time there was a convent here. The place is visited by holiday-makers and has oyster beds.

Minster Word used for a large church. It meant really the church of a monastery, and the older minsters were of this kind. To-day York Cathedral is often called the minster, and there are minsters at Beverley and Wimborne.

Minstrel A mediaeval musician, executant rather than composer, though frequently both. Minstrels came to England with the Normans. They attended the troubadours whose works they performed. Unattached, wandering minstrels were always welcomed, though noble families numbered minstrels among their valued retainers. In Elizabethan times minstrelsy declined.

The minstrels' gallery was a feature of the architecture of mediaeval churches and mansions. In Tudor and Plantagenet mansions it communicated with the kitchen.

Mint Place where money is coined under government authority. Formerly there were mints in England at York, Norwich, Chester, Bristol and Exeter, but now money is coined only at the Royal Mint, whose building at Tower Hill, London, was erected in 1810. Mints have been established at Ottawa, Pretoria, Calcutta and elsewhere. Each year a sample of the coinage is weighed and tested by the Goldsmiths' Company, a procedure known as the trial of the pyx.

Mint Genus of perennial labiate herbs (*Mentha*), distributed throughout N. temperate regions. They have creeping root stocks, square stems and whorls of purplish or pink flowers. Ten British species include peppermint, pennyroyal and horsemint. From this apparently came the garden spearmint, *M. viridis*, grown for culinary purposes.

Minto Earl of. Scottish title, borne since 1813 by the family of Elliot. The first earl was Gilbert Elliot, a Scottish baronet, who was Governor-General of India 1806-14, and died June 21, 1814.

His descendant, Gilbert John Murray-Kynynmound-Elliot, who became the 4th earl in 1891, saw service in Afghanistan, S. Africa, Egypt and Canada. From 1898 to 1904 he was Governor-General of Canada, and from 1905-1910 Viceroy of India. He died March 4, 1914.

The earl's eldest son is called Viscount Melgund, and his seat is Minto House, Hawick.

Minton Name given to a fine porcelain made at Stoke-upon-Trent. It was first made by a potter named Minton early in the 19th century, and is beautifully decorated. Minton works also won a reputation for their encaustic tiles, their della Robbia, majolica and other glazed ware.

Minuet Stately dance in triple time for two persons. It originated in Poitou and was fashionable in Paris about 1650. Lully was the first celebrated composer of minuet music. Musically the importance of the minuet form increased, until, independent of dancing, it was incorporated into sonata form.

Minute Term applied to a measure of time representing a sixtieth part of an hour, a minute is again divided into sixty parts, giving a second minute or second. This division of units into sixtieths dates from very ancient times and was characteristic especially of Babylonian astronomy and chronology.

Minutes Word used in connection with meetings of companies and societies. The minutes are a record of the proceedings of a meeting, made by the secretary in the minute book. They are read out at the next meeting, and if correct are signed by the chairman. Their accuracy can be challenged. By company law limited liability companies must keep minutes at their general meetings, and at those of the directors. A treasury

minute is an order, usually on a financial matter, issued by the treasury.

Miocene Geological term for the Tertiary system between the Pliocene and Oligocene. It is unrepresented in Britain, but occurring in Western, Central and South-East Europe as well as in America, and India. Miocene deposits vary from clay to conglomerates, some being of marine, others of freshwater origin. The climate of the period varied from sub-tropical to warm temperate, and animal life included the dinotherium, mastodon, hippopotamus and rhinoceros.

Mir Village community once found in the east of Europe, especially Russia. The land belonged to the people as a whole, and a village meeting decided matters that concerned the community. The mir system existed in the 20th century, but the Bolshevik rule did much to destroy what remained of it.

Mirabeau Honoré Gabriel. French politician. Born March 9, 1749, he spent his youth in profligacy, was imprisoned and sentenced to death, but pardoned in 1782. He then lived precariously on writing until, rejected by the nobility, he was elected by Marseilles to the Tiers Etat of the States-General. He tried by his great oratory and political sagacity to put the king at the head of the Revolution, by forming a new government on the English plan, but failed through the intervention of Marie Antoinette. He died April 2, 1791.

Miracle Term, "wonderful work," denoting an event transcending the known laws of nature. It is particularly associated with the supernatural factors in Christianity, and pre-eminently the resurrection of Jesus Christ. Modern science, which recognises the miracle of the origin of life as an indisputable if inexplicable fact, no longer opposes a rigid disbelief to the New Testament miracles, the evidence for which was tested at the time. Inquiry is increasingly concerned with those wider laws of nature, hitherto unsuspected, which offer new methods of approach. The view that miracles were primarily designed to attest the truth of the Christian revelation is no longer held.

Miracle Play Type of mediaeval religious drama. Continental usage distinguished representations of gospel events or their Old Testament fore-shadowings, called mysteries, from miracle plays portraying saintly legends. In England the former term was not used, the miracle play of mediaeval England practically covering both types; to this was added another, the morality play, illustrating similar truths allegorically. The removal of the representations outside the Church, the adoption of the vernacular, and lay acting, led to the Elizabethan drama.

Mirage Word used for optical phenomena that arise from the reflection and refraction of light in unusual circumstances. They are chiefly seen at sea or in deserts where there is calm air that is either extremely hot or extremely cold, but they are also seen elsewhere. The spectre of the Brocken in the Harz Mts. is a mirage.

Miramichi River of New Brunswick. It flows through the province for 220 m. and falls into Miramichi Bay, an arm of the Gulf of the St. Lawrence. It is navigable for small vessels for part of its course and is noted for its salmon.

Mirfield Urban district of Yorkshire (W.R.). It is on the Calder, 5 m. from Huddersfield, on the L.M.S. Rly. Woollen and cotton goods are made, and around are coal mines. Mirfield is the headquarters of the community of the Resurrection, a religious order in the Church of England, founded by Charles Gore in 1892. Pop. (1931) 12,099.

Miserere Name used for Psalm 51 ("Have mercy upon me O God"). It is the greatest of the penitential psalms and is usually attributed to David. The name is also used for the ledges placed under seats in the choirs of cathedrals and churches. Against this the monks could rest when the seats were turned up and they were standing. There are some fine examples in King Henry VII. Chapel, Westminster Abbey.

Misrepresentation In English law a false statement. A misrepresentation of a material fact is sufficient to make a contract void. In certain cases an action can be brought for misrepresentation.

Missal Latin book containing all the liturgical forms prescribed for the due celebration of the Roman Catholic Mass throughout the year. After the Council of Trent it was enjoined universally, except where local liturgies were at least two centuries old, 1570. At the Reformation the Anglican Prayer Book, 1549, superseded the ancient Sarum missal. The Roman missal, last revised in 1884, is now universal in Western Catholicism, except for the local Ambrosian, Mozarabic and some monastic rites.

Missel Thrush (*Turdus viscivorus*). Largest British songster, abundant throughout Europe and some parts of W. Asia. It is partial to mistletoe berries, hence the name. The male, 11 in., is greyish-brown above, black-spotted white beneath, golden on the rump; the song-notes are loud and sonorous. The grass-lined or mud-lined nests shelter 4 to 5 red-spotted, greenish eggs.

Missenden Great. Village of Buckinghamshire. It is 29 m. from London and 9 from Aylesbury on the Metropolitan and L.N.E. Rlys. It has become a popular place of residence for Londoners. Near is the village of Little Missenden.

Missions Organised efforts for the spread of a religion. In this sense Christianity has always been a missionary religion. The Acts of the Apostles records its progress from Judaea into Europe under the leadership of Paul. Later missionaries from the Celtic and other monasteries went throughout Europe. In the Roman Catholic Church missionary activity has been carried on by the Dominican, Franciscan and Jesuit orders. In the Protestant churches of Great Britain the closing years of the 18th century witnessed a great outburst of missionary enthusiasm. William Carey of Northampton founded the Baptist Missionary Society in 1792, and himself went to India as a missionary the following year. An important International Missionary Council was held at Jerusalem at Easter, 1928, at which more than one-third of the delegates were natives of Oriental or African countries.

Mississippi River of the United States, the most important in the country. It rises in a lake in the state of Minnesota and flows to the Gulf of

Mexico at New Orleans. It is 2460 m. long, but with the Missouri, its chief tributary, it is 4200 m. After it is joined by the Missouri at St. Louis, it passes Cairo, Memphis, Baton Rouge and Vicksburg. Its tributaries include the Wisconsin, Illinois, Ohio, Des Moines, Minnesota, Arkansas and St. Francis, and its drainage basin covers 1,250,000 sq. m. At St. Louis the river is a mile wide.

The Mississippi is used for navigation and ship canals have been cut to make this possible where there are obstructions. It is noted for its floods, especially in the lower courses, and tremendous damage was done by them in 1929. Vast sums have been spent on works for regulating the flood water: these including the building of embankments or levees and other works for improving the channel.

Mississippi State of the United States. One of the southern states, it lies to the east of the Mississippi near its mouth, and has a coastline on the Gulf of Mexico. It is one of the cotton growing states, but maize is also produced. Jackson is the capital; Meridian and Vicksburg are other towns, but none exceeds 50,000 in population. The area is 46,863 sq. m. It is governed by a legislature of two houses, and sends two senators and eight representatives to Congress. Pop. (1930) 2,009,821.

Missolonghi Town of Greece. It is on the west coast, just north of the Gulf of Patras. In the early part of the 19th century the Greeks fortified it, and three times it was besieged by the Turks. It is better known, however, as the scene of Lord Byron's death in 1824. There is a memorial to him. Pop. 8500.

Missouri River of the United States. It rises in the Rocky Mts. and flows mainly east and north until it joins the Mississippi, 20 m. above St. Louis, where it is over half a mile wide. It is 2950 m. long, being navigable for over 2000 m. On it are the waterfalls called the Grand Falls. Its chief tributaries are the Milk, Yellowstone, Platte and Kansas. It passes Kansas City, Jefferson City and other towns. The name means "mud river."

Missouri State of the United States. One of the central states, its eastern boundary is the Mississippi which divides it from Illinois. It is crossed by the Missouri. Its area is 69,420 sq. m. An enormous quantity of maize is grown in the state, which also produces oats, wheat and coal. Jefferson City is the capital, but St. Louis is much the largest place. Kansas City is another populous centre; other cities are St. Joseph and Springfield. Missouri is governed by a general assembly of two houses, and sends 2 senators and 16 representatives to Congress. Pop. (1930) 3,629,367.

Mistletoe Evergreen parasitic shrub of the order *Loranthaceae* (*Viscum album*), indigenous to Europe and N. Asia. The smooth pendent yellowish-green stem, 1 to 4 ft., bears forking branches with oval lance-shaped leaves, mostly paired, small green flowers and round, white berries containing a viscid pulp. The British host-plants include the apple, black poplar, hawthorn, lime and willow. Associations with early Celtic druidical ritual survive in modern Christmas celebrations, whose supply comes mostly from Normandy and Hertfordshire.

Mistral Cold, dry, north wind that blows in the south-eastern parts of France. It comes from the central plateau of



THE LIGHTS OF MONTE CARLO.—Europe's great pleasure resort on the Riviera as it looks by night across the harbour from Monaco. The Casino may be seen brightly illuminated on the right. [*The Times*]

the country and blows to the sea down the valley of the Rhône. It is very damaging to fruit trees.

Mitcham Urban district of Surrey. It is 10 m. from London, on the S. Rly. The industries are laundrying, the manufacture of sweets and the growing of lavender. The Wandie passes through the district. The fair held every Aug. is one of the most famous in England. Pop. (1931) 56,856.

Mitchelstown Town of Co. Cork, Irish Free State. It is 11 m. from Fermoy on the Gt. S. Rly. In 1887 there were riots here in which some lives were lost. Pop. 2,146.

Mite Name of small eight-legged invertebrate creatures of the class *Arachnida*. It forms with ticks the widely distributed order *Acari*, which pass through a six-legged larval stage. The unsegmented abdomen is usually indistinctly separated from the combined head and thorax. Many are parasitic, such as those causing itch, mange and scab, or those affecting mice, rats and poultry. Gall-mites cause big-bud disease in fruit trees; "red spider" form a family injurious to cultivated plants; others infest cheese, flour, sugar and copra. See HARVEST-MITE.

Mithras God of the Persians. He was the sun god and was regarded as a beneficent spirit. Worshipped in Persia, about 68 B.C., his worship was introduced into the Roman Empire, and there, especially among the soldiers, it flourished for about four centuries. In art the god is represented as a beautiful youth in the act of slaying a bull.

Mitre Headdress worn by certain officials of the Christian Church. Originally the headdress of the high priest of the Jews, it was worn by bishops in the 10th century and afterwards, and also by the more important of the abbots. Its use was discontinued in the Church of England, but it again came into use in the 19th century, and now most of the Anglican bishops wear mitres on ceremonial occasions.

In joinery a mitre is a joint of two blocks or mouldings of a similar pattern at an angle, usually a right angle, divided equally between the two.

Mitylene Capital of the island of Lesbos. It is a seaport on the east coast and has a good harbour. Pop. 29,500. See LESBOS.

Mizpah (or Mizpeh). Hebrew name, "watch-tower," of several Old Testament places. (1) The stoneheap raised by Jacob and Laban, perhaps Jephthah's Gilead home (Gen. xxxi.); (2) Mizpah of Moab, where David placed his family (1 Sam. xxii.); (3) the land of the Hivites who joined Jabn, near Mt. Hermon (Josh. xi.); (4) Gedaliah's residence after Jerusalem's fall, N.W. of Jerusalem (2 Ki. xxv.).

Mnemonics Art of improving the memory, usually by aid of a system of rules, rhythmic lines or other devices. The Greeks used mnemonic methods for training the memory, and in more recent years many mnemonic systems have been invented. Most of them depend upon the association of ideas.

Moa Maori name of a family of flat-breasted flightless birds formerly abundant in New Zealand, and now extinct. Apparently exterminated by the Maoris before European colonisation, they are known from remains collected from beds of Pleistocene

age. They range from the giant moa, *dinornis maximus*, 12 ft. high, down to one 3 ft. high. Pale-green eggs, rounded feathers, and mummified heads and legs have been found.

Moab Region anciently occupied by the Moabites, who were traditionally descended from Lot's son Moab (Gen. xix.) It is a lofty tableland E. of the Dead Sea and lower Jordan valley, bounded N. by Ammon and S. by Edom, and confronts the eastern desert. Its inhabitants were subdued by David (1000 B.C.).

Moabite Stone Black basalt slab discovered by Klein at Dibon, Moab, in 1868. Although subsequently shattered by local Bedouin Arabs, Clermont-Ganneau secured it for the Louvre, Paris. Measuring, after reconstruction, 46 ins. by 24 ins. by 14 ins., its 34 lines of primitive Hebrew script record victories against Israel of Mesha, King of Moab, c. 850 B.C.

Mobile City and seaport of Alabama, U.S.A. It stands on the Mobile Bay on the south coast at the mouth of the Mobile River, 130 m. from New Orleans. There is a large harbour with extensive docks, and the city has a large overseas trade. It is also a fishing port and has some manufactures. Pop. (1930) 68,202.

Moccasins Name of the shoe worn by N. American Indians. Made of deerskin or other soft leather, without stiff sole, the upper is often adorned with embroidery, beadwork or coloured sections of porcupine-quills.

Moccasin Snake Venomous North American snake; (1) the upland copperhead, *Aristrodon contortrix*, 3 ft. long; (2) the fish and frog-eating water-moccasin, *A. piscivorus*, 5 ft. long, dreaded by negroes in the rice-fields.

Mocha Seaport of Arabia. It is on the Red Sea and was at one time a great port for the export of coffee. Certain brands of coffee were known as mocha. It was formerly the capital of the state of Yemen. Pop. 5000.

Mocking Bird Popular name of various birds with exceptional powers of mimicry. The common N. American perching song-bird, *mimus polyglottus*, 10 ins. long, is intermediate between the wrens and the bobblers. Ashy-grey above, soiled-white beneath, the male has a full, liquid personal note, besides imitating the cries of many birds and other sounds.

Modder River of South Africa. It rises in the Orange Free State and flows through that country until it joins the Vaal in Bechuanaland. Its length is 186 m. On Nov. 28, 1899, there was an engagement here between the Boers and the British who forced their way across it with some loss.

Modena City of Italy. It is 23 m. from Bologna on a tributary of the River Po. The chief building is the magnificent cathedral. It is a manufacturing town and has a large agricultural trade. Pop. 85,000.

The territory around Modena formed the independent Duchy of Modena until it became part of the kingdom of Italy in 1863. From the thirteenth century it was ruled by the Este family.

Moderator Word used in the Presbyterian churches for a presiding minister. Each year a distinguished minister is elected moderator by the General

Assembly that meets in Edinburgh. In addition every presbytery has a moderator or presiding minister, and one is appointed to look after the affairs of a church that is temporarily without a minister. In England the Congregational church has moderators, each in charge of a district. At Oxford and Cambridge the examiners for certain examinations are called moderators, and at Oxford the second examination for a degree is called moderations. At Trinity College, Dublin, moderators are those who take the two highest places in certain examinations.

Modernism School of thought in Christian theology. In the Roman Catholic Church an early 20th century movement sought to adjust dogma to the generally received conclusions of Biblical criticism. Some leaders, notably Tyrrell and Loley, encountered ecclesiastical censure, culminating in Pius X.'s encyclical *Pascendi pręvia*, 1907. All clerics were enjoined to abjure modernism in 1910.

Modulus Term used in physics. It denotes the measure of an effect produced under certain conditions whose measure is taken as unity. The term is applied in a number of ways, thus the modulus of a machine is the ratio of its load to the power in equilibrium; the modulus of elasticity is the ratio of a stress to the accompanying strain, and the gravity modulus is a modulus of elasticity where the unit of force is taken as the weight of a unit mass.

Moffat Burgh and inland watering-place of Dumfriesshire. It is 21 m. north of Dumfries, on the I.M.S. Ry., and stands on the Annan. Pop. (1931) 2006.

Moffat Robert. Scottish missionary. Born at Ormiston, in East Lothian, Dec. 21, 1795, he became a gardener, spending his spare time in study. He was then trained as a missionary and in 1816 went out to South Africa for the London Missionary Society. He was there until 1870 and died at Leigh, near Tunbridge Wells, August 9, 1883. A man of great courage, devotion and resource, Moffat was one of the most successful missionaries of the time. His daughter married David Livingstone.

Mogul Name, a variant of Mongol, given to the empire that existed in India from about 1526 to 1858. It was founded by Baber, and continued to exist until after the Indian Mutiny. Its emperor, whose capital was Delhi, was called the Great Mogul.

Mohair Arab word meaning "select," and used for the fleece of the Angora goat. This has been used for many years for making garments and coverings. See ANGORA.

Mohammed Name of six sultans of Turkey. The name is a variant of Mahomet. The best known was Mohammed II., called the Conqueror (1451-1481). The greatest of his exploits was capturing Constantinople in 1453.

Mohawks North American Indian tribe of Iroquoian stock. Encountered between the St. Lawrence and the Catskills they were the first natives to obtain firearms, in exchange for pelts from the Dutch, 1614. Becoming the leaders of the Six Nations confederacy, they sided with England in the War of Independence, and migrated to Canada, where several thousands still remain.

The word was also used for a lawless band of ruffianly youths of fashion who nightly infested

London streets, 1711-12. They atrociously attacked wayfarers of both sexes.

Mohicans North American Indian confederacy of Algonkin stock. First encountered in the upper Hudson valley, Mohawk pressure drove them partly into Massachusetts, 1664, a few now occupying a Wisconsin reservation, partly into Pennsylvania, where the Delawares absorbed them. An offshoot, the Mohegans, now extinct, became the dominant tribe in 17th century New England.

Molasses Sweet syrup produced when sugar is refined. It comes from both cane and beet sugar. It is thick, brown in colour, and has considerable food value. Treacle is made from it and by its fermentation rum is produced.

Mold Market town and urban district of Flintshire, also the county town. It is 13 m. from Chester, on the L.M.S. Ry. There are some manufactures and around are coal and lead mines. Pop. (1931) 5133.

Moldavia District of Rumania. It lies between Bessarabia and Wallachia and covers 14,700 sq. m. Jassy is the chief town. It is named after the River Moldava, a tributary of the Sereth.

Moldavia Soviet republic. One of the Russian republics affiliated to Moscow, it is on the left bank of the Dniester. It covers only 3200 sq. m., and its capital is Baita.

Mole Term applied to a form of breakwater. It consists of a stone wall or similar structure built of concrete projecting out into the sea to serve as a protection to shipping and form a haven, or to guide and regulate the currents and tidal flow.

Mole Small permanent congenital spot on the skin, more or less unsightly. It is usually slightly raised, often covered with hair, and darkly pigmented, and is sometimes called a birth-mark.

Mole River of Sussex and Surrey. It rises in Balcombe forest and flows through Surrey into the Thames near Molesey. It is 30 m. long and is noted for its Swallows, places where the river goes underground for a spell. These are near Leatherhead.

Mole Small burrowing, insectivorous mammal of the family *Talpidae*. Distinct from the shrew, it is found in the N. hemisphere. The common mole of Europe and Asia, *Talpa europaea*, 6 in. long, with 1 in. tail, widespread in Britain, is a muscular, earless, almost cyclops animal, feeding mainly on earthworms, and nesting in fortresses, not to be confounded with molehills. The velvety bluish-black coats are esteemed by furriers.

Molecule Smallest particle of matter composing a compound and consisting of a group of atoms having an independent existence and yet possessing the special properties of the substance in question. A simple example is that of common salt or sodium chloride, where one atom of sodium is combined with one atom of chlorine to form a molecule of salt, the resulting compound having characters quite different to those of the component elements. Molecules are regarded as being in ceaseless movement, this energy of molecular motion being heat. Further, there is an attractive force or cohesion which, under different conditions of temperature and pressure, acts upon the molecules, causing matter to assume either a solid, liquid, or gaseous state.

Molesey Urban district of Surrey. It stands on the Thames where it is joined by the Mole, being 2 m. from Kingston-on-Thames and 14 from London, on the S. Rly. It consists of East and West Molesey. Pop. (1931) 8460.

Molesworth Mary Louisa. English authoress. Born in May, 1839, she was the daughter of a Cheshire gentleman, C. A. Stewart. She made her name by her books for children. Among them are *Carrots*, *The Cuckoo Clock*, *Herr Baby*, *The Rectory Children*, *Tell me a Story*, *Robin Redbreast*, *Carved Lions*, *Uncanny Tales*, *Miss Mouse and Her Boys*, and *The Boys and I*. Some of these were written under the name of Ennis Graham. She died July 20, 1921.

Molière Name adopted by Jean Baptiste Poquelin, the great French dramatist. Born in Jan., 1622, his whole life was given to the theatre, beginning as a member and then leader of a small touring company and rising to the position of leading dramatic author of France, with the friendship and patronage of Louis XIV.

His work includes every type of comedy from simple farce to subtle satire, and forms a complete commentary on the people and customs of his period.

His greatest works are, *Les Précieuses Ridicules*, *L'École des Femmes*, *Tartuffe*, *Le Misanthrope*, and *Le Bourgeois Gentilhomme*. He died on Feb. 17, 1673.

Mollusca Sub-kingdom of invertebrate animals, including such forms as cuttle-fishes, oysters, whelks and snails. They are soft-bodied, cold-blooded, and lack segments, limbs and internal skeletons, being mostly protected by a shell of one or more pieces, secreted by the mantle or skin-covering. They have an alimentary canal, a mouth, a nervous system, and a heart, the blood being aerated by gills or, in land and most freshwater snails, by a kind of lung. Locomotion is effected mostly by a foot comprising the body's under surface which becomes the mussel's thready byssus, the tooth-shell's borer and the cuttle-fish's arms. See BIVALVES, CEPHALOPODA, GASTROPODA.

Moloch God of the Ammonites. He is called the abomination of the children of Ammon (1 Kings, xi. 7). He was a fire god and children were sacrificed to him. The name means king.

Moltke Helmuth, Count von. Prussian general called "The Silent." Born Oct. 26, 1800, at Parchim, he began his career in the Danish army, but in 1822 he entered the Prussian service. From 1835 to 1839 he was in the Turkish service, acting as adviser to the Turkish commander-in-chief in the Syrian campaign of 1838-9.

From 1858 to 1888 he was Chief of the General Staff in Berlin and reorganised the Prussian army. A master of military strategy, he played an important part in the war with Denmark in 1864, and was largely responsible for the Prussian success in the Seven Weeks' War with Austria (1866). In the Franco-Prussian war he planned the concentration of the Prussian armies on Metz, which resulted in the French capitulation at Sedan and the investment of Paris by the Prussians. He wrote histories of his campaigns for the use of the Prussian General Staff. He died April 23, 1891.

Moltke Helmuth Johannes Ludwig von. German general and nephew

of the famous field-marshal. He was born May 23, 1848. At the beginning of the European War he was appointed director of the German operations. He relied on the plans handed on to him by his master, General von Schlieffen, strengthening the Metz-Verdun and Marne lines in the west but leaving only a minimum defence against Russia.

He was forced to withdraw troops from the west to meet the Russian advance, and was held responsible for the defeat of the Marne. He was recalled to Berlin at the end of 1914 as chief of the home General Staff. He died on June 18, 1916.

Molton South. Borough and market town of Devonshire. It stands on the River Mole, 12 m. from Barnstaple and 197 from London, on the G.W. Rly. It was once a centre of the woollen and lace manufactures. It is now chiefly a market for farm produce and has flour mills. Pop. (1931) 2831.

North Molton is a village, 5 m. away.

Moluccas Group of islands in the Dutch East Indies, also called the Spice Islands. They cover about 44,000 sq. m. They lie between New Guinea and the Celebes and the chief are Ceram, Halmah, Buru, Amboyna, Obi, Bachan and other groups. The soil is very fertile, the chief products being spice, coffee, cacao, indigo and rice. Amboyna is the chief town. Pop. 430,000.

Molybdenum Metallic element, having the symbol Mo, atomic weight 96 and melting point probably 2,500° C. Molybdenum though only found in small quantities in nature has become of economic importance owing to its use in the manufacture of tool steels and the employment of its compounds in making ceramic pigments, and in rubber manufacture. The chief source of the metal is molybdenite, a native sulphide occurring in granites and crystalline limestones associated with tin ore, and found in Australia, North America and Norway.

Mombasa Seaport of Kenya. It is on an island named after it. From here a railway goes to the mainland and it is a terminus of the Uganda Rly. Pop. 35,000.

Momentum Term in physical science applied to the quantity of motion in a moving body. Momentum is measured by multiplying the mass by the velocity, thus, a body having a mass of one pound moving at the rate of 100 ft. per second has the same momentum as another body with a mass of 100 pounds moving at 1 ft. per second.

Mommsen Theodor. German historian and archaeologist. Born Nov. 30, 1817, he studied at Kiel and then examined Roman inscriptions in Italy and France for the Berlin Academy. In 1848 he was appointed Professor of Law at Leipzig. He occupied chairs at Zurich, Breslau, and Berlin, and was a member of the Prussian parliament. He was awarded the Nobel prize in 1902. His great works were, *Roman History*, published in three volumes between 1854 and 1856, and his *History of the Roman Coinage*, and *Roman Provinces*. He died on Nov. 1, 1903.

Monaco Principality of Europe. It is on the shores of the Mediterranean, 5 m. from Nice and is surrounded by French territory. It covers about 8 sq. m.; in it is Monte Carlo. It is governed by a prince who is under the protection of France.

The prince belongs to the family of Grimaldi, which has ruled Monaco since 968. He obtains his revenue from the gaming tables at Monte Carlo. Pop. 25,000.

Monaco, the capital, is the headquarters of the international hydrographic bureau and has a small harbour. Pop. 2100.

Monad Term used in metaphysics for the primary element or existence. According to Leibnitz substance exists as monads or atoms each being a self-contained individuality; further, God is the supreme monad and the soul of man a single monad.

In zoology, a monad is a simple unicellular organism belonging to the flagellate infusoria.

Monaghan County of the Irish Free State. In the province of Ulster. It covers 499 sq. m. The Blackwater and the Finn are the chief rivers. The soil is fairly fertile and the people live mainly by growing oats, flax and potatoes, rearing cattle, sheep, pigs, and keeping poultry. Monaghan is the county town; other places are Castleblayney, Carrickmacross, Clones and Ballybay. Pop. (1931) 65,131.

Monaghan Urban district and county town of Monaghan. Irish Free State. It is 52 m. from Dublin by the Gt. Northern (Ireland) Rly. and is also served by a canal. It is an agricultural centre. Pop. 4636.

Monarchy Form of government in which supreme power is vested in a single individual. It may be absolute, independent of all other authority, and, according to the analytical school of political theory, incapable of legal limitation; or constitutional, subject to a form of constitution, written or unwritten. The English monarchy is constitutional.

Monash Sir John. Australian soldier. Born at Melbourne, Jan. 27, 1865 he was educated at the University of Melbourne and became an engineer. In 1887 he became an officer in the defence force and when the Great War broke out in 1914, after acting as censor, he led a brigade in Gallipoli. Later he went to France in command of a division and in 1918 became head of the Australian corps. He was knighted in 1918 and took charge of the demobilisation operations. In 1920 he returned to his work as an engineer. Monash, who was a Jew, died Oct. 8, 1931.

Monasticism System of corporate life adopted by persons who retire from the world into religious seclusion. The monastic life, older than Christianity, is exemplified in Buddhism and among the Essenes. In Egypt in the 2nd century solitary asceticism was practised by many hermits, one of whom S. Anthony organised corporate hermitages, c. 305, and founded Christian monasticism. In S. Egypt, a few years later, S. Pachomius founded the first cenobium, although the hermits still lived separately. Still later S. Basil, by prescribing common life under one roof, founded the Orthodox Eastern monastic system.

These practices spread westward, notably to Ireland, until Europe's unregulated asceticism was replaced by the ordered life of self-denial introduced by S. Benedict at Monte Cassino, c. 529. His rule, based on the "three substantials," poverty, chastity, and obedience to a superior, thenceforward governed all Western monasticism. Subsequent reforms introduced the Carthusian, Cistercian and other

systems; a revolt against corporate monastic possessions gave rise to the mendicant orders, whose members are called friars, not monks.

Monastir Town of Yugoslavia. It is 130 m. to the N.W. of Salonika and is chiefly known for its military associations. In Nov. 1912, in the first Balkan War the Serbians defeated the Turks here, and in 1913 the town was formally given to them. In Dec., 1915, it was seized by the Germans. In Oct., 1916, French and Serbian forces attacked the Turks in the region of Monastir and entered the town on Nov. 19. Also called Bitolla, it has some manufactures and does a considerable trade. Pop. 30,000.

Moncton City and seaport of New Brunswick. It is on the Petitcodiac River, 89 m. from St. John, on the C.N. Rly. There is a good harbour and some shipping and here are railway workshops and textile mills. Pop. 17,448.

Mond Ludwig. German chemist. Born at Cassel, Germany, March 7, 1839, he was a pupil of Bunsen, but came to England in 1864 and settled in Widnes, where he perfected his sulphur recovery process. In 1873 he entered into partnership with Sir John Brunner, and founded the great alkali works of Brunner, Mond and Company at Winnington, Cheshire. He made new discoveries in the manufacture of nickel, and in 1876 presented a physico-chemical laboratory to the Royal Institution at a cost of £100,000. He was the father of the late Lord Melchett (Sir Alfred Mond). He died on December 11, 1909.

Monet Claude. French painter. Born Nov. 14, 1840, he was one of the founders of the Impressionist school. A member of the Dégas, Cézanne, Sisley group and a "painter of the open air," he was particularly interested in the effect of light on his subjects. He produced a number of studies of cathedrals (1874) and several views of London (1901). He died on Dec. 5, 1926.

Money Primarily coins used for the purchase of commodities. The term also includes pieces of impressed paper used for the same purpose and has been extended to cheques, bills of exchange, etc. The money market is the general term for dealings in money in London, New York, and other centres. A money changer is one who changes the coin of one country into that of another.

The earliest method of exchanging commodities was by barter, but soon pieces of metal and other substances, shells for example, were used for the purpose. Metallic money was first used, it is said, in Lydia. For many centuries silver coins were the chief form of metallic money. Gold coins were also minted, but to no great extent until the 19th century, when they became the generally accepted standard of value. These gold coins, and in their early days silver coins also, had a value equal to that of the goods they bought. Coins which did not possess this intrinsic merit (e.g., the modern silver, nickel and copper coins), were only token coins; their value depended upon the solvency of the country that issued them.

In 1914 it became evident that the gold and silver coinage was inadequate to meet the needs of a world at war, and Governments issued paper money on an enormous scale. The result was that gold coins fell entirely out of use. Paper money continued in use after the end of the war, and silver coins were also used to a certain extent. The

functioning of money in relation to prices, was a matter of dispute during the serious economic crisis of 1931-32, but economists seemed unable to agree as to the utility or otherwise of increasing the supply of money in circulation.

In Great Britain a money bill is one that votes public money for a particular purpose. Such cannot be altered by the House of Lords. The decision as to whether or not a bill is a money bill rests with the Speaker.

Moneylender One who lends money as a business. Special legislation has been passed in England and other countries to protect the public from moneylenders. All moneylenders must be registered at Somerset House, London, W.C.2, and take out a licence which costs £15 a year. The law courts have powers to reduce the rate of interest and the amount charged for expenses if they consider such to be excessive. An Act passed in 1927 forbids moneylenders to exact compound interest on loans or to increase the rate of interest because the payments are in arrears.

Money Market Term applied to that market where all transactions can be reduced to the buying and selling of ready money against a promise of settlement at a future, definitely defined date. In this are involved foreign exchange movements, purchase of bills of exchange, dealings in Treasury Bills, and fluctuations of the Bank Rate.

Moneywort (*Lysimachia nummularia*). Perennial creeping herb of the primrose order, allied to the yellow pimpernel, a native of Europe. Its prostrate stems, 1-2 ft. long, bear rounded 1 in. leaves and solitary, bright-yellow, cup-shaped flowers 2 in. across.

Mongolia District of Central Asia. It lies W. of Manchuria, S. of Siberia, and N.E. of Chinese Turkestan and China proper. Inner Mongolia belongs to the Chinese Republic. Outer Mongolia has been a republic since 1924. Its area is 1,367,600 sq. m. The country is mountainous and much of it is occupied by the Gobi Desert. Its inhabitants belong to various nomadic tribes, and are cattle breeders and itinerant traders. Urga is the capital. The population is in the neighbourhood of 3,000,000.

Mongoose Indian name applied to various small weasel-shaped carnivorous mammals. They form a sub-family of the civet tribe and are indigenous to Africa and S. Asia. The Indian *Herpestes mungos*, 15-18 ins long, with 15 ins. tail, is frequently famed for destroying snakes and rats. The somewhat larger Egyptian mongoose, formerly called the ichneumon, devours crocodile eggs.

Monism Philosophic view which refers all phenomena to a single form of reality, whether material or spiritual. Certain schools of thought consider the dualism of matter and mind, or body and soul to be parallel phenomena indistinguishable in reality. Some, e.g., Spinoza, lean to materialistic, some e.g., Hegel, to intellectual monism.

Monitor Armoured warship intended for coastal or river service and therefore of shallow draught. A monitor has a low freeboard and bulging sides for defence against torpedo attacks. It is designed for moderate speed and carries one or two guns. The first monitor was designed by Ericsson in

1861. Monitors were used to some extent during the Great War, notably on the Belgian coast in 1914.

Monitor Genus of fork-tongued lizards (*Varanus*), inhabiting S. Africa, S. Asia and Australasia. Long-bodied, with uncrested back and frequently with flattened tails, the head is covered with small scales. All are predaceous, powerful creatures, with a partiality for eggs; some are semi-aquatic, and may reach 7 ft.

Monk Member of a male monastic order. Usually denoting a Christian recluse, the word, "living alone," is also applied to the members of Buddhist and Mohammedan religious fraternities. It was first used of the Christian hermits of 2nd century Egypt, afterwards extended to those who followed a cenobitic or corporate life in seclusion; the female counterpart is a nun. See FRIAR.

Monk Bretton Urban district of Yorkshire (W.R.). It is 2 m. from Barnsley on the L.M.S. Rly. There was a monastery here in the Middle Ages; hence the name. Woollen manufacture is the chief industry.

Monkey Name loosely applied to all mammals of the order *Primates* except man and perhaps the larger man-like apes. Distributed throughout the warmer regions they comprise, besides the long-armed gibbons, an extensive Old World family sharing their posterior callosities, the tails when present being never prehensile, and many possessing cheek-pouches. These include the langurs, baboons and macaques, one of which is the Barbary ape of Gibraltar. American monkeys, are recognisable by the absence of callosities and cheek-pouches, by possessing four additional grinding teeth, making 36 altogether, and mostly having prehensile tails. Another family comprises the marmosets.

Monkey Flower (*Mimulus*). Genus of perennial herbs of the figwort order. They are natives of extra-tropical America and Australasia. The showy, mask-like corollas, sometimes splashed and spotted, yellow, scarlet, purple or white, yield favourite garden flowers; a double-flowered "hose-in-hose" form occurs.

Monkey Puzzle Tree. Popular name for the Chile pine (*q.v.*).

Monkland Canal in Scotland. It goes from the Clyde at Glasgow to the North Calder at Calderbank. It is 13 m. long and is used chiefly for carrying coal. It was opened in 1790 and is now owned by the L.M.S. Rly.

Monkshood (*Aconitum napellus*). Genus of hardy perennials of the order *Ranunculaceae*. The leaves are dark green and the hooded shape of the dull blue flowers, which are borne on a long head, have given the plant its popular name. Another variety (*A. napellus bicolor*) has violet, blue and white blossoms. Wilson's blue monkshood, is a beautiful autumn blooming variety. The whole plant is poisonous.

Monkwearmouth District of Sunderland. It is situated on the north bank of the Wear and is 262 m. from London by the L.N.E. Rly. St. Peter's Church includes remains of a Benedictine monastery. See SUNDERLAND.

Monmouth Borough of Monmouthshire, also the county town. It stands where the Monnow falls into

the Wye, 144 m. from London. An interesting feature is the bridge with its gateway, over the Monnow. The town possesses a collection of Nelson relics. The borough includes Troy on the other side of this river. The town has an agricultural trade. Pop. (1931) 4731.

Monmouth James Scott, Duke of. Born April 9, 1649, he was the son of Lucy Walters and Charles II. Very much in favour with the king and the people at first he was created Duke of Monmouth, and became Captain-General of the Army. As a result of the Rye House Plot he was exiled in 1683. He returned to England in 1685 and led a revolt against James II., whose Catholicism had aroused the fear of a considerable party in England. He was defeated and captured at Sedgemoor soon after landing, and was executed on Tower Hill, July 15, 1685.

Monmouthshire County of England. On the border of Wales, it is treated for many purposes as part of that country. It covers 546 sq. m., and has a coastline on the estuary of the Severn. Monmouth is the county town, but Newport is the largest. Other populous centres are Pontypool, Abertillery, Bedwellty and others in the coal mining area. The more picturesque aspect is represented by Chepstow and Aberavenny, while the county also contains Tintern, Ruglan and Caerleon. The rivers are the Wye, Usk, Ebbw and Rhymney. The west of the county is on a rich coal field. Monmouthshire contains some of the loveliest scenery in England. There wheat is grown, sheep are reared, and there are many orchards. Pop. (1931) 434,821.

Monolith Single stone of great size. Monoliths are found in Egypt, India, Peru and elsewhere, and are associated with early man. Some are plain stones, but others are sculptures. One at Baalbek in Egypt weighs 1100 tons.

Monoplane Type of aeroplanes in which there is only one set of planes or supporting surfaces. The well-known Fokker three-engined aeroplanes are of this type, also the Dornier flying-boats, Junkers and the British Fairey postal aeroplane. See **AEROPLANE**.

Monopoly Exclusive right to trade in a particular commodity. In the Middle Ages and later, it was a very usual practice for kings to give monopolies to subjects, e.g., the monopoly to sell coal in a certain town. These became very unpopular and in 1614 they were forbidden by law. Certain still exist, however, but these take the form of patents, the monopoly being granted to the inventor for a certain time. In France the sale of matches is a state monopoly, and in Great Britain broadcasting may be described as such.

Monotheism System of religious thought and practice which recognises only one God. Opposed to polytheism, which worships many gods, manifested in physical, animal or human forms, it claims distinction from systems of moral dualism by asserting the ultimate supremacy of good over evil. Differing from deism, it ranks as revealed religion based upon sacred scriptures, and is regarded as theism's highest expression. It is exemplified in Islam, Judaism and, notwithstanding the doctrine of the Trinity, in Christianity. See **DEISM**.

Monotype Name given to a form of printing machine. It was

invented by an American, Lanston of Washington, for composing lines of movable type, each letter being a separate character. It consists of two machines, one a typewriter-like keyboard by which the operator perforates a paper roll, each perforation representing a letter, the other a casting machine which works automatically, casting lines of type from the perforated ribbon and arranging them in their proper order. The monotype machine, which is used for printing *The Times*, has the advantage of a great output and the capacity for printing intricate work, with a very high standard of quality.

Monro Sir Charles Carmichael, 1st Baronet. British soldier. Born June 15, 1860, he joined the army in 1879. He served in South Africa and was later commandant of the Musketry School at Hythe. During the Great War he served on the Western front as commander of the 1st Army Corps, and later of the 3rd Army.

As commander-in-chief of the Mediterranean Expeditionary Force he saved the situation in the Dardanelles by carrying out the evacuation of Gallipoli. He was commander-in-chief in India in 1916 and Governor of Gibraltar, 1923-1928. He was created a baronet in 1921.

Monroe James. American president. Born in Virginia, April 28, 1758, he was elected to the legislature of Virginia in 1782 and in 1785 became a member of the House of Representatives of the United States. In 1793 he was elected to the Senate and in 1794 went to France as an ambassador but was recalled in 1796. From 1799 to 1802 he was governor of Virginia and afterwards ambassador in turn in Paris, London and Madrid. In Paris he arranged the purchase of Louisiana by the United States. From 1811-17 Monroe was secretary of state. In 1816 and 1820 he was elected president. In 1825 he retired from public life and died in New York, July 4, 1831.

Monroe is chiefly known as the author of the **Monroe doctrine**. In 1823 he recognised the independence of the republics in South America, previously under Spanish rule, and in so doing, he declared that the American continents "are henceforth not to be considered as subjects for future colonisation by any European power."

Monrovia Capital and seaport of Liberia. It stands on the Atlantic, at the mouth of the St. Paul River. Through it much of the seaborne trade of the republic passes. It is connected by motor roads with the interior. Pop. 12,000.

Mons Town of Belgium. It stands on the River Trouille, 38 m. from Brussels, and is a coal mining centre and the capital of the district called the Borinage. The chief buildings are a beautiful town hall and a fine Gothic church. The town has some manufactures. Owing to its position Mons was several times taken and retaken during wars with France and until 1862 its fortifications remained. From Aug., 1914 to Nov. 11, 1918, it was in the possession of the Germans.

Mons Battle of. Battle between the British and the Germans, Aug. 23, 1914. At the outbreak of the Great War the British Expeditionary force took up a position from Mons to Condé, and here it was attacked by the Germans. The two British army corps resisted the attack throughout the day, but at nightfall, the French on their left having given way, they were ordered to retire. This they did in good order. Of 85,000

mon engaged the British losses were about 5000.

Monsoon Seasonal wind blowing from the Indian Ocean over south-eastern and eastern Asia bringing heavy rain. It is caused by the rapid heating and cooling of the atmosphere in the same way as in the case of the diurnal land and sea breezes of low latitudes. The summer monsoon of India is south-westerly and blows strongly across the Indian Ocean, becoming south-easterly up the Ganges Valley and condensing in heavy rains, the heaviest rainfall being in the valley of Assam.

Monstrance In the Roman Catholic Church a transparent vessel in which the consecrated host is shown to the people for adoration.

Montagu Lady Mary Wortley. English letter writer. Born about 1690, daughter of the Duke of Kingston, she was famous even in youth for her beauty and wit. She was a friend of Alexander Pope, Addison, and other notable literary and society leaders. In 1712 she married Edward Wortley Montagu.

In 1716 Montagu was appointed ambassador at Constantinople, and Lady Mary lived with him in the East from 1716 to 1718. It was from the East that her letters, describing Turkish life, were mainly written. She died on Aug. 21, 1762.

Montaigne Michel de. French writer, philosopher and moralist. Born Feb. 28, 1533, he lived for the most part at the Château de Montaigne in Périgord. He was councillor of the *parlement* of Bordeaux, and *maître* of that town. Writer of the *Essais* in which he studies his own nature and that of humanity as a whole, he was particularly interested in the apparently contradictory elements of human nature, which, he said, are so confusing that it is only with the help of the divine revelation that man can arrive at the truth. His essays are notable for the grace and freshness of their style, and for the perspicacity and wide tolerance of the author. He died Sept. 13, 1592.

Montana North-eastern state of the U.S.A. It is situated on the Canadian border. Its products include wheat, oats and fruit, and, among other minerals, gold, silver, coal and petroleum. Represented in congress by 2 senators and 2 representatives, it joined the Union in 1889. Area, 147,182 sq. m. Pop. 550,000.

Mont Blanc Highest mountain peak in the Alps. It reaches the height of 15,781 ft., and is situated on the frontier between France and Italy, the mountain range running in a north-easterly direction. There are a number of smaller associated peaks, such as the Aiguille du Dru, Aiguille d'Argentière, Aiguille Verte, Grandes Jorasses, etc., and below are the Mer de Glace and other glaciers.

Montcalm Louis Joseph, Marquis de. French soldier. Born Feb. 29, 1712, he was in command of the French troops in Canada and captured the British posts of Oswego and Fort William Henry. After the French had lost Louisburg and Fort Duquesne, Montcalm moved to Quebec and was finally routed in battle by Wolfe on the Plains of Abraham. After trying vainly to rally his forces he was wounded and died the next day, Sept. 14, 1759.

Monte Carlo Pleasure resort of Monaco. It stands on the Mediterranean, 9 m. from Nice, and occupies a beautiful position overlooking the sea. It is famous as a gambling centre and the chief building is the casino. Pop. 10,000.

Monte Cristo Island of Italy. It is 26 m. south of Elba and covers 6 sq. m. On it are mineral springs. It gives its name to a famous romance by Dumas, *The Count of Monte Cristo*.

Montenegro Kingdom of Europe, now included in Yugoslavia. It began about 1390 as a principality and was ruled from 1697 by a family called Danilo. It was nominally part of the Turkish Empire until 1878 when it became independent. It received a constitution in 1905 and in 1910 its ruler, Prince Nicholas, took the title of king. When the Great War began, Montenegro took the side of Serbia. The land was therefore invaded by the Austrians, and by Jan., 1916, it was completely in their possession. At the end of 1918 they withdrew and the Serbians took their place. The Montenegrins then decided to depose Nicholas and unite with Yugoslavia. The area of the country is about 3630 sq. m. Its capital is Cetynio, but Jakova is the largest town. See YUGOSLAVIA.

Monterey City and pleasure resort of California. It is on Monterey Bay, 80 m. to the south of San Francisco. It has a good harbour and the industries include shipping and fishing. Pop. 3100.

Another Monterey is a city of Mexico. It is on the San Juan River in the north-east of the country. It is a manufacturing centre, but is more famous for the beauty of its surroundings. Pop. 81,000.

Montesquieu Charles de Secondat, Baron de la Brède et de. French political historian. He was born Jan. 18, 1689. In 1721 he published the *Lettres persanes*, in which, in the character of two Persian visitors, he satirised the decadence and insincerity of French society. His great political treatise, *De l'esprit des lois*, was published at Geneva in 1748. He was for a long time the President of the *parlement* of Bordeaux, and then travelled in Europe and became the friend of Lord Chesterfield. He had wide vision and deep insight, and his admiration for the free English constitution had a great influence on the first part of the French Revolution. He died Feb. 10, 1755.

Montessori Maria. Italian teacher. Born in 1870, she became a doctor and took a special interest in children of weak intellect. In 1898 she became head of an institution for the education of such children. Her methods spread to other European countries and were taken up as a means of educating normal children.

The Montessori system aims at developing the child's individuality in every possible way. He or she is taught to look after himself or herself in every way. Attention is paid to physical training; work in the garden and in the open air is encouraged as well as manual work of one kind or other. There is a Montessori Society in London.

Montevideo City and seaport, and capital of Uruguay. It stands on the north side of the estuary of the River de la Plata, 132 m. from Buenos Aires and is well served by railways. It developed with great rapidity in the 19th century and is

now a prosperous seaport and trading centre. The port has a fine harbour with ample docks. Pop. 447,900.

Montezuma I. Mexican emperor. He annexed Chalco and overpowered the Tlaxcalans. He died 1471.

Montezuma II. Mexican emperor, son of Montezuma I. Born 1466, he waged war against Tlaxcala. Guatemala and Tehuantepec and greatly enlarged his empire. In 1519 the Spaniards, under Cortes, landed, marched to the capital, and soon made the emperor a virtual prisoner. In 1520 Montezuma tried to prevent the Mexicans from attacking the Spaniards, but was himself attacked by them and died three days later.

Montfort Simon de. Born about 1206, he came to England in 1230. At first a great friend of Henry III., who created him Earl of Leicester, he afterwards fell into disfavour and was sent to Gascony to quell a rebellion. He returned in 1253 to find the barons in revolt against the king's foreign counsellors. For many years he led the barons in attempts to make Henry rule wisely, and in 1265 called a parliament which was the forerunner of modern government. He was defeated at Evesham in 1265 by Edward, Prince of Wales, and killed in the battle.

Montgomeryshire County of Wales. In the north of the country, it is wholly inland. In it there are several ranges of hills including the Plynlimon range in the south. The rivers include the Severn, Dovey, Vyrnwy and Wye and herein is Lako Vyrnwy. The soil, not very fertile, is used chiefly for the rearing of sheep. Montgomery is the county town. Other places are Welshpool, Llanidloes, Llanfyllin, Newtown and Machynlleth. Pop. (1931) 48,462.

Month Division of the year. It may represent a period of twenty-eight days or one revolution of the moon round the earth, known as a lunar month, or it may represent the twelfth part of a year and is then termed a calendar month. In the Roman or Julian calendar, which began in March, the months corresponded to our own, with the exception of the fifth and sixth, named Quintilis and Sextilis, which were later renamed Julius and Augustus.

Montmartre District of Paris. It is on a hill to the north of the city proper and is famous for its night life and as a centre of Bohemianism. The chief building is the basilica of the Sacré Coeur.

Montmorency River of Quebec. It rises in Snow Lake, flows south through the province for about 80 m. and joins the St. Lawrence just outside the city of Quebec. The falls near the mouth are used to generate electric power. An electric railway links it with Quebec.

Montpellier City of France. It is 31 m. from Nîmes, only a few miles from the Gulf of Lyons. The university was a famous medical school in the Middle Ages and the city has a botanic garden, the oldest in France. The city is a railway junction, and has some manufactures. Pop. 82, 819.

Montreal Largest city in Canada. It is situated on the island of the same name, at the confluence of the Ottawa and St. Lawrence Rivers, in the province of Quebec. It is the commercial capital of the Dominion and between 1844 and 1849 was the political capital also.

Shipping is the principal industry, for the St. Lawrence is navigable during three-quarters of the year, and Montreal is a busy port. It is also a great railway centre, and the C.P.R. has its shops here. Educationally it is of importance, with its two universities, McGill and Montreal. The population is largely French. The modern city was founded by Maisonneuve, but there was previously an Indian village on the site. Pop. 989,835.

Montreuil Town of France. It is on the River Canache, 20 m. from Boulogne, on the main railway line to Paris. At one time Montreuil was on the sea, but it is now some miles away. From March, 1916, to the end of the war Montreuil was the British general headquarters and near it was the château occupied by Sir Douglas Haig.

Montreux Pleasure resort of Switzerland. It stands on the eastern side of Lake Geneva, about 50 m. from Geneva. It has a station, and from here steamers go to other places on the lake.

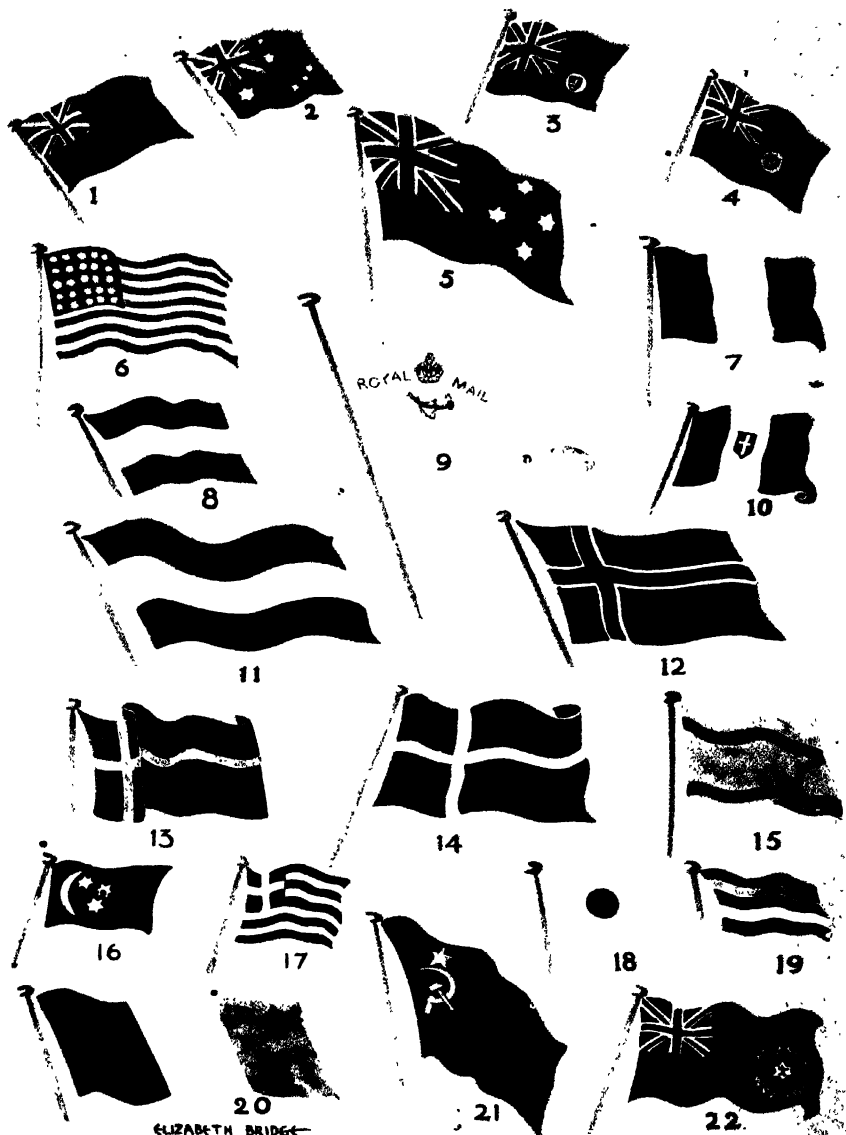
Montrose Royal burgh and Seaport of Angus (Forfarshire). It is 31 m. N.E. of Dundee on the L.M.S. and L.N.E. Ryds., and stands on the South Esk where it forms the Montrose Basin. The town received its charter from David I., and became a royal burgh in 1552. The staple industry is flax spinning, others are fishing, shipping, and the manufacture of linen. Pop. 10,186.

Montrose Duke of. Scottish title held by the family of Graham. In 1505 William, Lord Graham, a title dating from 1445, was made Earl of Montrose. John, the 3rd earl, was regent of Scotland and chancellor from 1603 to 1608. His grandson, James, the 5th earl (q.v.), was the famous soldier who was made a marquess in 1644. James, the 4th marquess, a supporter of the union between England and Scotland in 1707, was made a duke in that year. He was secretary of state, 1716 to 1733, and from him the present duke is descended. The duke's estates are around Loch Lomond, but a good deal of the land has been sold. The duke's eldest son is called the Marquess of Graham.

Montrose James Graham, Marquis of "The Great Montrose." Born in 1612, he helped to form the Scottish Covenant, which he at first defended. After turning against the Covenanters he was imprisoned and went to England, but returned in 1644, when the Highlanders rallied round him. His campaign against the Covenanters was successful, but he was routed by Leslie at Philiphaugh, near Selkirk. He escaped abroad, but returned to avenge the execution of Charles I. He was then betrayed to Leslie who had him publicly hanged in Edinburgh, May 21, 1650.

Mont St. Michel Island off the coast of Brittany. It is in the Bay of St. Michel, 15 m. from Granville. A causeway about a mile long connects it with the mainland. On the highest point of the island is an abbey, now national property. The abbey was founded in 708, and the oldest existing building dates from the 11th century.

Monument Architectural structure, tomb, shrine, sculpture or incised brass used to commemorate some person or important event. Of ancient monumental buildings the famous mausoleum at Halicarnassus is an example. A modern monument of national importance is the Cenotaph in Whitehall. Monumental brasses of varying degrees of technical skill were common in



MERCHANT FLAGS OF THE NATIONS.—1. Red Ensign (Mercantile Marine). 2. Australia. 3. Canada. 4. South Africa. 5. New Zealand. 6. United States (actually 48 stars—one for each state). 7. France. 8. Germany. 9. Royal Mail. 10. Italy. 11. Holland. 12. Norway. 13. Sweden. 14. Denmark. 15. Spain. 16. Yugo Slavia. 17. Greece. 18. Japan. 19. China. 20. Irish Free State. 21. Soviet Russia. 22. India.

English churches from the 13th to 17th centuries.

Moody Dwight Lyman. American evangelist. Born Feb. 5, 1837, he started his work in Chicago in 1856. In 1870 he joined forces with Ira David Sankey and began the "Moody and Sankey" evangelical tour. Their campaigns in England in 1873 and again in 1883 caused a great emotional wave of revivalism due to the preaching of Moody and the singing of Sankey. Moody and Sankey hymns are still sung.

Moon Satellite of the earth. It revolves round the earth in 27 days, 7 hours, 43 minutes, and its average distance is about 238,793 m. The moon's diameter is about 2160 m., and its mass is estimated at $\frac{1}{80}$ of that of the earth. Owing to the time taken by its axial rotation being the same as that of its revolution round the earth, the moon always presents the same aspect to us. It shines by reflected light from the sun and when opposite the sun is called full moon, a fortnight later when between the earth and sun it is nearly invisible and is called new moon. The effect of the lunar attractive force upon tides is well known. The moon's surface shows signs of former volcanic activity in its vast craters and plains.

Moonstone Precious stone. Sometimes called wolf's eye, fish's eye, or water opal, it reflects a bluish milky light. It is a translucent, colourless feldspar, chiefly orthoclase.

Moonwort (*Botrychium lunaria*). Fern of the adder's-tongue order, native in Britain and all cold and temperate regions. The single stout and fleshy frond, 3-6 ins. long, bears close-set pairs of crescent-shaped leaflets.

Moore George. Irish novelist. Born in Ireland in 1852, he first studied art in Paris, but turned to literature, beginning with verse, *Flowers of Passion* (1878). His three great novels are *Esther Waters* (1894), *Evelyn Innes* (1898), and *Sister Theresa* (1901). In these he imitated the French philosophical novel and "restored in England the Fielding tradition." *Hail and Farewell*, dialogue of an autobiographical character, *The Brook Kerith* and *Heloise and Abelard* are other outstanding works. He turned later to drama with *The Coming of Gabrielle* (1920), and the successful *Making of an Immortal* (1928).

Moore Sir John. Scottish soldier. Born in Glasgow, Nov. 13, 1761, he entered the army and from 1794 onwards saw active service in Ireland, the Netherlands, Egypt and elsewhere. He was sent to Spain in 1808 at the head of an army, and was soon given command of the forces there. He marched from Lisbon into Spain, but the advance of a large French army forced him to retreat and to fall back on Corunna, to which port he ordered his ships. The retreat was a difficult march of 250 m., but nevertheless Moore, on reaching Corunna, was able to defeat the pursuing French. During the battle on Jan. 16, 1809, Moore was fatally wounded by a cannon-ball.

Moore Thomas. Irish poet. Born May 28, 1779, his best-known works include the *Irish Melodies* (1807), the *Twopenny Post Bag* (1813), a satire on the Regent and his friends, *Lalla Rookh* (1817), for which he received £3,000, *The Fudge Family Abroad* (1818), and his very fine *Life of Byron* (1830). He died Feb. 25, 1852.

Moorfields District of London. To the north of the city, it was

marshland until it was drained about 1500. It later became known as Finsbury Fields, and was built over. Finsbury Square and Finsbury Circus now occupy the site.

Moor Hen Water-fowl. The European *Gallinula chloropus* (*Rallidae*) is common in England on rivers, ponds, etc. Iron-grey with greenish wings, white at the edges, it swims in a jerky manner, and can run and fly rapidly.

Mooring Mast Mechanism to which airships anchor. It is so arranged that the airship with its nose fastened to the top of the mast, can swing in any direction with the wind. Inside the mast are stops for passengers and crew to ascend, and it contains also mechanism for taking up petrol, water and other supplies. There are large mooring masts at Cardington, Bedford.

Moor Park Residence in Surrey. It is 2 m. from Farnham, and is noted as the residence of Sir William Temple, who bought it in 1682. Here Dorothy Osborne lived and Jonathan Swift met his Stella.

Another **Moor Park** is in Hertfordshire, near Rickmansworth on the Met. fly. The house, built about 1870, was a seat of Lord Ebury, but after the Great War he sold it, and the park has been cut up for building land.

Moors Name of a people who live in the northern parts of Africa. They are descended from the Berbers or the Arabs, and gave their name to Morocco. Some of them crossed into Spain and conquered a good part of that country. There they set up a kingdom which lasted from 711 until 1492, and the southern parts of Spain still bear extensive traces of their influence, especially in architecture. They were of no mean repute as scholars. Other Moors helped to repulse not only Morocco, but also Algiers and Tunis, where they are still found. See MOROCCO; SPAIN.

Moose Algonkin name, "wood-cropper," of the world's largest species of deer (*Alces machilis*). Ranking as an American variety of the elk of N. Europe and Siberia, it formerly ranged from 43° N. lat. northward to the so-called Arctic barren-grounds. It is disappearing from the northernmost of the United States, but is still found in Alaska and in various parts of Canada, especially towards the N.W., being protected in Alberta and elsewhere. See ELK.

Moose Jaw City of Saskatchewan. It is on Moose Jaw River, 400 m. to the west of Winnipeg and the same distance from Calgary. It is served by both the transcontinental lines, C.P.R. and O.N.R., and is the centre of an agricultural district. Pop. 24,000.

Moraine Term used in geology. The rocky material carried along the side of a glacier forms a lateral moraine. A median moraine is formed when two glaciers meet. The terminal moraine is found where a glacier ends.

Morality Play Form of drama that was popular in the 15th century. It grew out of the miracle play, the distinguishing feature being to personify the virtues and vices and so inculcate a moral lesson. The most famous of these plays is *Everyman*. It tells how human beings enter upon the journey to which they are called by death. Another of these plays is *The Castle of Perseverance*, which tells how the human

race is tempted by luxury but is saved by penitence.

Moratorium Postponement of a debt or other liability, usually for a definite period. In Aug., 1914, on the outbreak of war, the government declared a moratorium of one month for bills of exchange. In Dec., 1931, Hungary, faced with serious financial difficulties, declared a partial moratorium. During the depression of 1930-32 some public companies secured a moratorium for the payment of their debenture interest.

Moravia Part of the republic of Czecho-Slovakia. It is in the centre of the country with Bohemia to the west. Brunn is the capital and the March, also called the Morava, is the chief river. It was united with Austria-Hungary in 1849, and from then until 1918 was a province of that empire.

Moravian Brethren Protestant religious body. Founded originally after the death of John Huss (1415), an organisation was set up at Berthelsdorf in Saxony in 1727, its leaders being Count Zinzendorf and Christian David. Some of its members were Lutherans, but others were persons who had fled from Bohemia to Saxony and were the successors of the Hussites of the 15th century. The new faith obtained a footing in England and had chapels in Chelsea and in Fetter Lane, London. The churches are governed by bishops and elders. The Moravians do a great deal of missionary work. They have about 40 churches in England and over 3000 members. The headquarters are in Fetter Lane, London, E.C.4. The whole church is divided into four provinces, Germany, Britain, North America and South America.

Moray Former name for the county of Elgin (q.v.). It is the name of one of the earldoms into which Scotland was divided in the later Middle Ages. This covered the modern counties of Elgin, Banff, Nairn and part of Inverness.

Moray James Stewart, Earl of. Born in 1531, the natural son of James V. of Scotland, he opposed Mary, Queen of Scots in her marriage to Darnley, and was partly responsible for the murder of Rizzio, her secretary. When Mary was imprisoned in Loch Leven by the rebellious nobles, Moray was appointed Regent. He was known as the "Good Regent" and did much to restore civil and religious peace in Scotland. He was shot on Jan. 23, 1570, by one of Mary's supporters.

Mordant Substance used in dyeing to fix a dye in a fabric by forming an insoluble compound with the colouring matter, or by acting as a medium for absorbing the dye. Alumina and aluminium salts, ferric oxide, and salts of tin and chromium are used as mordants, also oil mordants in Turkey-red dyeing.

Mordecai Jewish exile. He figures in the Old Testament Book of Esther as the queen's protector and relative, who co-operated with her in frustrating the vizier Haman's anti-Jewish plots.

More Hannah. English authoress. Born at Stapleton, Gloucestershire, Feb. 2, 1745, she came to London in 1774, and became a friend of Dr. Johnson and of Burke. Garrick produced her tragedy, *Perry*, in 1777, but after his death she renounced the theatre and became a philanthropist, starting Sunday Schools in Cheshire, and organising a movement of which the outcome was the Religious

Tract Society. She wrote many religious books, and bequeathed all her money to charity and religious institutions. She died Sept. 7, 1833.

More Sir Thomas. English scholar and lawyer. Born in London, Feb. 7, 1478, he was a son of a judge, Sir John More. He went to Oxford and then settled in London, where he studied and then lectured on law. He obtained an official position in the city and was elected to the House of Commons. Thomas Wolsey formed a high opinion of him and appointed him Treasurer of the Exchequer and Chancellor of the Duchy of Lancaster, whilst the Commons chose him as Speaker. He went to France and Germany on public business, and in 1529, succeeded Wolsey as Lord Chancellor. In 1532 he resigned that office and in 1534, for refusing to recognise the king as head of the church, he was accused of high treason. On July 7, 1535, he was beheaded. He was beheaded in 1886.

More is one of the most attractive characters in English history, and has a permanent place in English literature. He was a member of the circle of scholars and humanists that included Erasmus and Colet. He wrote a *History of Richard III.* as well as the immortal *Utopia*.

Morecambe Borough and watering place of Lancashire. It stands in Morecambe Bay, 3½ m. from Lancaster, on the L.M.S. Rly. Fishing is the chief occupation. Pop. (1931) 24,600.

Morecambe Bay Opening of the Irish Sea. It cuts into the coasts of Lancashire and Westmorland and is 10 m. across. At low tide it is largely sand. The Lune, Wyre, Kent and other rivers flow into it.

Moresnet District of Belgium. It is on the border of Germany just outside Aix la Chapelle. In 1816 it was placed under the joint control of Germany and the Netherlands. In 1841 it was put under a burgo-master and council, and the inhabitants could be either German or Belgian citizens at choice. In 1919 it was handed over to Belgium. Here are zinc mines. Pop. 3000.

Morgan John Pierpont. American financier and banker. Born at Hartford, Connecticut, on April 17, 1837, he was the son of a banker and entered the family firm in 1864. This later became the firm of J. P. Morgan and Company, and, largely through his financial ability, became one of the most powerful banking houses in the world. It organised the Steel Trust, formed an Atlantic Shipping Combine, controlled railways, etc. He was a yachtsman, collector and philanthropist, and died a multi-millionaire on March 31, 1913, in Rome. His son, John Pierpont, placed contracts and raised loans for the British Government during the War.

Morland George. British painter. Born June 26, 1763, he was the son of the crayonist, Henry Morland, who brought him up with such strictness that when he became his own master, he went steadily downwards through drink and debt. He painted chiefly country subjects, such as gipsies and farm interiors. His pictures are remarkable for their beauty of conception and harmony of colouring. "The Inside of a Stable" in the National Gallery is one of his finest works. He died of brain fever and in poverty on Oct. 29, 1804.

Morley Borough and market town of Yorkshire (W.R.). It is 4 m.

from Leeds and 183 from London, by the L.N.E. Rly. The place is a centre of the woollen manufacture, and machinery is made. Pop. (1831) 23,397.

Morley Viscount. English writer and statesman. Born at Blackburn, Dec. 24, 1838, John Morley was the son of a doctor. He went to Cheltenham College and then to Lincoln College, Oxford. In 1867 he became editor of *The Fortnightly Review*. During the next 10 years he wrote his studies on Voltaire, Rousseau, Diderot and other French thinkers, and a book, *On Compromise*. These and the writings published as *Critical Miscellanies*, reveal him as a thinker, a scholar and a stylist. He wrote also *Lives of Burke and Cobden* and was recognised as the leading exponent of philosophic radicalism. In 1880 he became editor of *The Pall Mall Gazette*, but he resigned in 1883, the year after he had given up *The Fortnightly*.

In 1883 Morley entered the House of Commons as M.P. for Newcastle-on-Tyne, and when Gladstone declared for Home Rule, he was one of his leading supporters. He was Chief Secretary for Ireland in 1886 and again, 1892-95. In 1895 he lost his seat at Newcastle, but in 1896 was returned for the Montrose Burghs. Soon after Gladstone's death, he withdrew from public life, while he wrote the monumental life of that statesman, published in three volumes in 1904. In 1905, when the Liberals returned to power, he became Secretary for India, a post he held until 1910. In 1908 he was made a viscount, and he was Lord President of the Council from 1910 until he resigned on the outbreak of war in Aug., 1914. He died Sept. 23, 1923, when his title became extinct. His many honours included the O.M. His writings, in addition to those mentioned, include *Studies in Literature and a Life of Walpole*. He edited the *English Men of Letters* series.

Mormons Religious organisation entitled the Church of Jesus Christ of Latter-Day Saints, founded by Joseph Smith in New York State, 1830. So-called divine revelations included a pretended history of primitive America, *The Book of Mormon*, claimed as of equal authority with the Jewish and Christian scriptures. The church spread rapidly to Ohio, Missouri and Illinois, secured many proselytes in England and sent missionaries elsewhere. In 1843 the prophet received a "revelation" permitting polygamy; during the "Gentile" indignation thereby aroused, he was shot. Brigham Young, who succeeded, led the church in 1847 to Great Salt Lake, afterwards constituted the Utah Territory. Prolonged controversies concerning plural marriages culminated after Young's death in their ostensible abandonment, 1890. The community now exceeds 500,000, with 82 churches in Great Britain. The Reorganised Church of Latter-Day Saints, after Smith's death, distrusted Young and repudiated polygamy, accepting the founder's son as president, 1860. Now numbering about 100,000, their headquarters are in Independence, Missouri.

Morning Glory Popular name of various twining herbs of the bindweed order. It refers especially to the tropical American *Ipomoea purpurea* which gardeners call alternatively *Convolvulus major*. It has alternate, toothless, heart-shaped leaves and large five-lobed, funnel-shaped corollas, purple, azure-blue, crimson, striped or white. Ivy-leaved and other forms occur. *Ipomoea* includes also the sweet potato and jalap (q.v.).

Morocco Country of N. Africa. It has a coastline on the Mediterranean Sea and Atlantic Ocean, while Algeria lies to the West. The total area is 218,500 sq. m. which is divided into three territories, French, Spanish and International.

The native population consists largely of Berbers and Arabs, and there are also many Jews. The European population is chiefly French, and there are British colonies at Casablanca and Tangiers.

Agriculture is the main industry in all territories. A great irrigation scheme was begun in 1927. There is some mining, phosphate being the most important mineral so far exploited. The chief towns are Fez, Marrakesh and Rabat. The country is ruled by a sultan under French protection. Pop. 5,300,000.

Morpeth Borough and market town of Northumberland. It is on the River Wansbeck, 284 m. from London and 17 from Newcastle-on-Tyne, by the L.N.E. Rly., on which line it is a junction. The industries include brewing, malting and coal mining, while cattle fairs are held. Near are the Bothal Castle and the ruins of Newminster Abbey. Pop. (1831) 7390.

Morphia (or Morphine). Name given to the principal alkaloid in opium, morphia was isolated in 1816. It occurs either as a white amorphous powder or as transparent acicular crystals soluble in alcohol but insoluble in water. Morphia is used in medicine on account of its soporific and anodyne properties, although excessive doses are poisonous and fatal. Its import and export is regulated by licence under the Dangerous Drugs Act.

Morris William. English poet. He was born March 24, 1834. He first tried painting as the result of his close friendship with Burne-Jones, but in 1858 published *The Defence of Guenevere*, and in 1867 *The Life and Death of Jason*. His best known work is *The Earthly Paradise*. He contributed to the movement which tried to bring about a revival in decorative art in England and started the Kelmscott Press in 1890. In his later years he was a pronounced socialist, and showed sympathy with the poor by lectures and writing; but he was always more writer, poet and artist than politician. He died Oct. 3, 1896.

Morris Dance Dance very popular in the 16th century. Its name shows that its originators were the Moors, and it may have been introduced into England by Eleanor of Castile, the wife of Edward I. It was danced at village festivals. The characters included Robin Hood and Maid Marian, and a hobby horse was usually introduced. There has been a revival of the Morris dance in the 20th century.

Morrison Herbert Stanley. English politician. Born Jan. 3, 1888, he worked in a shop as a telephone operator. Later he became connected with the newspaper industry and came to the front as a socialist politician. He was elected to the London County Council and rose to be the leader of his party there. In 1923-24 and 1929-31 he was M.P. for South Hackney, and from 1929-31 he was Minister of Transport. He conducted the Road Act of 1930 through the House of Commons, and was regarded as one of the most successful of the Labour ministers. He lost his seat at the General Election of 1931. In 1920 Morrison was Mayor of Hackney, and in 1928-29 chairman of the Labour Party.

Morrison River of Scotland. It is only 19 m. long and enters Loch Ness in Inverness-shire at Invermoriston.

A suburb of Swansea is named **Morrison**. On the G.W. Rly., it has tinplate works and other industries.

Morse Code System of signalling by telegraph operators, but since extended and modified for army and navy signalling. It was devised by Samuel F. B. Morse, in collaboration with Alfred Vail, in 1837 for telegraphic purposes, and consists of a series of dot and dash symbols representing letters of the alphabet, numerals, punctuation marks and conventional phrases, these signs being combined in various ways. In signalling the code is used by day by means of flags or the heliograph, and by night by lamp signals. A modified code known as American Morse is used to some extent in Canada and the United States.

Mortar Cementing material used for binding together bricks or stones in buildings. Mortar for brickwork consists of quicklime and clean grit or sharp sand mixed with water, and for courses of ashlar masonry a mixture of slaked lime and water known as mason's putty. The term mortar is applied also to a vessel of porcelain, iron, agate or other materials in which substances are reduced to a powder by means of a pestle, or in ore-dressing by a steel shoe.

Mortar Type of cannon formerly much in use for throwing shot or shell at a short range and at a high angle. The barrel was thick-walled with a smooth bore and leaded at the muzzle, the whole being mounted on a strong frame or bed. In the Great War modifications of the older type of mortar were used by both combatants, these taking the form of weapons which could be thrown into the opposing trenches.

Mortgage Name for a charge on land and houses. It is a loan secured on the property in question and a good deal of money is lent in this way by building societies. The lender or mortgagee can give notice, usually six months, that he wants his money repaid. If this is not done he can sell the property, and after taking what is owing to him, hand over the balance to the mortgagor, who is the legal owner of the house, as he possesses what is called the equity of redemption. Alternatively he can apply to the court for an order permitting him to foreclose, or take over the property entirely. The details of a mortgage are contained in a deed which must bear a stamp. This costs 2s. 6d. for every £100 or part of a hundred. Mortgages can be sold, a transfer stamp being required.

Mortise Term in joinery and masonry for a cavity cut in a piece of wood or block of stone to receive a shaped end or tenon of another piece. This form of joint is used to give stability and strength, and an example of mortised work in stone is seen in the trilithons at Stonehenge.

Mortlake District of Surrey. It is on the Thames, near Richmond, 6½ m. from London, on the S. Rly. It is known as the place where the Oxford and Cambridge boat race finishes. In the 17th century it was famous for its tapestries, and in the 18th for an enamelled stoneware called Mortlake ware.

Mortmain Word meaning "dead hand." It was used in the Middle Ages by lawyers for land that was

given to the church and so never became liable to the dues payable on death, as other land did, because its holders, being a corporation, never died. Landowners sometimes made over their lands to the church, but retained the revenues, thus avoiding taxation. In 1279 a law was passed forbidding persons to pass any land into mortmain. To-day there are many exceptions in English law to the rule that corporations may not hold land. Public companies, railways and other companies formed by act of Parliament, and local authorities can buy and own land. Charitable trusts can also own it, but if the amount is over two acres they must obtain a licence from the Board of Trade.

Morton Earl of. Title borne by the family of Douglas since 1458. The most important of the 20 earls was James Douglas, the 4th holder of the title. He became earl in 1553, and was one of the leaders of the party opposed to Mary, Queen of Scots. He was concerned in the murder of Rizzio and Darnley, and fought against Mary at Langside. He was made Regent of Scotland in 1572. For complicity in the murder of Darnley, years previously, he was condemned by an assize, and executed on June 2, 1581. The earl's eldest son is called Lord Aberdour.

Morton John. Archbishop of Canterbury, cardinal and statesman. Born about 1420, he began as an ecclesiastical lawyer and took a prominent part in the Wars of the Roses on the Lancastrian side. After the victory of the Yorkists, he was reconciled to Edward IV. and became Master of the Rolls in 1474. Arrested by Richard III., he escaped and supported the Earl of Richmond, later Henry VII. He was principal adviser to Henry, Archbishop of Canterbury in 1486 and Lord Chancellor in 1487. He was created cardinal in 1493 and died on Oct. 12, 1500.

Mosaic Term applied to a surface formed of small pieces of various stones, tiles, metal or glass, and used for making floors or for covering walls, vaults and columns. Roman mosaic was used chiefly for flooring, but in Byzantine architecture the art of mosaic work reached its height as mural and pictorial decoration, inlaid cubes of many-coloured marbles, glass and enamels being used. Fine mosaics of the early period are to be seen in St. Mark's, Venice, and the churches of Ravenna.

Moscow Ancient capital of Russia, now the capital of the Russian Union of Socialist Soviet Republics. It has a fine situation on seven hills, and is full of historic interest. The Kremlin is the ancient citadel. Here is the Great Palace and other famous buildings, including the Uspenski Cathedral, the coronation place of the Tsars.

Moscow is an important commercial and railway centre, being the starting point of the Trans-Siberian Rly. Its industries, temporarily hindered by the Revolution, have revived again, and the population has increased with astonishing rapidity. In 1926 it was 4,412,300. It has nine broadcasting stations. The two most powerful operate on 1481 M., 100 kW., and 1304 M., 100 kW.

Moselle River of France and Germany. It rises in the Vosges and flows through Alsace-Lorraine into Germany, where at the Coblenz it falls into the Rhine. It is 320 m. long and much of its course is navigable. Its chief tributaries are the Meurthe and the Saar. It gives its name to a light wine that is made from grapes grown in the valley.

Moses Hebrew law-giver and leader. Son of Amram and Jochebed, and younger brother of Aaron and Miriam, he was adopted by Pharaoh's daughter, educated as an Egyptian prince, and undertook pastoral pursuits in Midian, marrying his employer's daughter, Zipporah. Returning to Egypt, he became the leader of the Israelites, and after the Exodus, accompanied them to the outskirts of Canaan, dying near Mt. Pisgah. Posterity ascribed to him the first five Old Testament books and the legislative code embodied therein.

Mosley Sir Oswald Ernald. English politician. Born Nov. 16, 1896, a son of Sir Oswald Mosley he was educated at Winchester and Sandhurst, and entered the army. Having served in France, he was elected Unionist M.P. for Harrow in 1918. In 1924 he joined the Labour Party. In 1926 he was elected M.P. for Smethwick. In 1929 he became Chancellor of the Duchy of Lancaster in the Labour ministry, but differed from his colleagues and resigned. In 1931 he formed the New Party, but at the General Election of that year he and his colleagues failed to secure election. For a short time he controlled a paper called *Action*. In 1928 he succeeded to the baronetcy. In 1920 Mosley married Cynthia, daughter of the Marquess Curzon. She was M.P. for Stoke-on-Trent in the Labour interest, 1929-31.

Mosque Mohammedan house of prayer. Normally an open quadrangular court with a fountain for ceremonial ablutions, surrounded by an arcaded sanctuary, with a wall-niche indicating the direction of Mecca, a pulpit and sometimes a lectern, it is completed externally with a dome and minarets.

Mosquito General name given to insects belonging to the *Culicidae* or gnat family. A number of species occur in Great Britain. These insects pass their larval stage in stagnant water, and the female only is provided with biting mandibles, the male being quite harmless. The tropical genus, *Anopheles*, is a carrier of the malarial parasite, and other species of the parasite of yellow fever.

Mosquito Coast Low-lying territory along the W. coast of Nicaragua, fronting the Caribbean Sea. About 225 m. long, averaging 40 m. wide, it bears an aboriginal name, corrupted by early European settlers. Great Britain exercised a protectorate, 1655-1860, when Nicaragua acquired suzerainty; the Indians retained autonomy, withdrawn in 1906, and resided in the Mosquito Reserve, since renamed.

Moss Group of cryptogamic plants forming a division of the class *Bryophyta* and closely related to the liverworts. While their structure is cellular, vascular tissue being absent, a conducting tissue is present and the plant body is differentiated into an apparent stem and leaves. Like the ferns, alternation of generations occurs, the moss plant representing the sexual stage bearing the sexual elements or "flowers," with the spore capsule borne upon the moss stem as the asexual generation.

Mossel Bay Seaport of Cape Province, South Africa. It is 318 m. to the east of Capetown, and is connected with that city and other places by railway. It is a port of call for ocean steamers and has a harbour protected by a breakwater. It is noted for its oysters. Pop. 5700.

Mossley Borough and market town of Lancashire. It is 10 m. from Manchester, on the L.M.S. Rly., and is situated on the Tame. Here are engineering works and textile factories. Pop. (1931) 12,041.

Most Favoured Nation Clause inserted in many commercial treaties between countries. It means that the two nations making the treaty will not give to any other nation advantages in the matter of tariffs greater than they give to one another. There were cases in 1932 of the violation of this principle, but protests were promptly made by Great Britain.

Mosul City of Iraq. It is on the right bank of the Tigris, 220 m. north of Bagdad, and, being on the road to Persia, has long been an important trading centre. Under the Turks it was also a military station. The word muslin is a corruption of Mosul. Opposite the city, across the Tigris, are the ruins of Nineveh. Mosul was occupied by the British in Nov., 1918. Pop. 60,000.

The vilayet of Mosul is rich in oil and an international company has been formed for working it; the construction of a pipe line arranged.

The ownership of the vilayet was a matter of dispute after the Great War, as it was claimed by both Turkey and Iraq, the latter then controlled by Great Britain. In 1925, negotiations between them having failed, the League of Nations decided in favour of Iraq, and the boundary line was fixed, with a neutral zone of 50 m. on each side. The inhabitants accepted this decision, but they were not altogether satisfied when the mandate given to Great Britain came to an end and Iraq became an independent state.

Motet Short piece of musical composition largely in the church music of Tallis, Palestrina and other composers. The music is contrapuntal in style with great delicacy of expression.

Moth Lepidopterous or scale-winged insect of the division *Heterocera*. It has variously-shaped feelers, as distinct from a butterfly of the division *Rhopalocera*, with club-like feelers. Their feelers may be thread-like, spindle-shaped, comb-like or feathery, but never club-like. Moths usually fly during twilight or at night, but this characteristic is neither scientific nor invariable. Most have the fore and hind-wing on each side linked in flight by a bristle and catch, which butterflies lack. Both butterflies and moths have spiral probosces for imbibing food, and scales covering body and wings, except in the earwings. The most important, economically, are those whose larvae produce silk.

Mother-of-Pearl Nacreous or inner lining of the shell of the pearl oyster, used in the manufacture of buttons, ornamental articles and for inlaying. Of the several trade varieties, white mother-of-pearl from Thursday Island and the Great Australian Barrier Reef is the best; other grades are the yellow-edged shell from Burma and the black-edged from various Polynesian islands.

Mother of Thousands Popular name applied to two unrelated flowering herbs. (1) The European ivy-leaved toad-flax of the figwort order, long naturalized in Britain (*Linaria cymbalaria*). Its yellow-

ipped bluish-purple flowers, like miniature antirrhinums, suit hanging baskets. (2) The creeping-sallor or strawberry-geranium of the saxifrage order, from E. Asia (*Saxifraga sarmentosa*), is a favourite cottage-window plant.

Motherwell Burgh of Lanarkshire. It is on the Clyde, 13 m. from Glasgow, on the L.M.S. Rly. The chief industries are coal mining and engineering. Since 1920 the burgh has included Wishaw. Pop. (1931) 64,700.

Motherwort Perennial labiate herb (*Leonurus cardiaca*). Growing in British hedgerows and waste places, it is indigenous throughout Europe and N. and W. Asia. It is a downy, aromatic plant with erect stem 2-4 ft. high, much-divided lobed and toothed leaves, and dense whorls of small pale-rose flowers.

Motion Act of moving or change of position of a body. It is a fundamental condition of matter, as the smallest particles, atoms and molecules, are in a state of constant movement. Consequently motion has not to be maintained, but may be accelerated, retarded or changed in direction under certain conditions. To explain the nature of motion, Newton framed three fundamental laws, the first being that all bodies remain in a state of uniform motion in a straight line, except under the action of an external force; the second law states that under this action acceleration of the body occurs in proportion to the force; and according to the third law the action of every force is opposed by an equal and opposite reaction.

Motley John Lothrop, American historian and novelist. Born on April 15, 1814, he achieved fame with his *Rise of the Dutch Republic* (1856), a work that had taken him 10 years to write. This was followed by a *History of the United Netherlands* (1860-69). In 1861-67 he was minister of the American Government to Austria, and in 1869-70 minister to Great Britain. He died on May 29, 1877.

Motor Term used in a general sense for different forms of machines employed as prime movers. Examples are the various types of engines—steam, gas, oil or petrol, hydraulic motors and electric motors. Electric motors for converting electrical energy into mechanical energy are classified as direct current and alternating current motors, the latter type being the most extensively used. The direct current type is still, however, employed for many purposes, being most suitable for high-speed passenger lifts, rolling mills, colliery winding and certain kinds of machine tools. Direct current motors are either series, shunt or compound-wound machines, according to the method of winding the insulated coils on the armature and magnets.

Motor Car Name given to a self-propelled road vehicle driven, at the present day, by a petrol engine. Steam-driven vehicles came into use in the early 19th century, but the invention of the petrol motor in 1884 brought in a new type of engine which rapidly superseded the old type.

A motor-car consists of a metal framework or chassis, which supports the body, the driving mechanism, engine, wheels, axles, brakes, etc. The engine, fixed usually in the fore-part of the chassis, has a friction clutch

joining it to the transmission gear, but the power is transmitted to the driving wheels in various ways, and the arrangement of the engine, transmission, mechanism and driving axle also varies in different types of car. In ordinary motor cars transmission is by the shaft drive, but many commercial vehicles still retain the older chain drive. The body varies considerably according to the type of car and the requirements for seating accommodation. In some makes there is a folding hood, in others, as in the limousine type, the seating accommodation is permanently enclosed. The racing car type has a specially designed body with wedge-shaped radiator and conical rear end to give the minimum of air resistance.

Private motor cars are taxed at a rate of £1 per horse power per annum, the minimum tax payable being £8. Commercial vehicles are taxed according to their type, and coaches and omnibuses according to their seating accommodation.

Motor Cycle Two-wheeled vehicle. It is propelled by an internal combustion engine of either one, two, three or four cylinder power, with belt or chain transmission, and with or without a sidecar for carrying a passenger. The term also includes in a broader sense certain kinds of three-wheeled cars.

A motor cycle is taxed according to the weight (unladen), the amount being £1 10s. for less than 224 lb. or £3 for more than this weight, with an extra £1 in each case for a sidecar. These licences now may be taken out in quarterly payments of 27½ per cent. of the full annual tax.

Motor Mark Identification mark allowed to motor vehicles on registration. It consists of index letters, representing the county or borough council, followed by a number. Motor marks are displayed on plates in a prominent position on the vehicle, the rear plate being illuminated. In motor-cycles plates are carried at the front and rear, both being illuminated. Recently the size of the letters and figures has been increased to render identification easier.

Motor Racing Competitions for motor vehicles commenced in 1894 on the continent, especially in France, on suitable circuits on roads. Among the first were the Gordon-Bennett races for reliability and speed for teams of touring cars from each competing country. The Grand Prix was established in France, 1906, to enable individual makes to compete with one another. Brooklands track was constructed in 1907 to remedy the fact that England, having no suitable testing place, suffered in these competitions. Races and tests are now common events in England, on the continent and in America, and extend to motor-cycles, on the road—the Tourist Trophy races, and on special tracks—speedway racing, and to motor-boats.

Mottram Ralph Hale. English author. He was born in 1883. As a result of his war experiences, he produced the *Spanish Farm* trilogy, which brought him immediate fame. He has written since then *Our Mr. Dormer*, *The English Miss*, *A History of Financial Speculation*, *Europa's Beast* and *Castle Island*.

Mouflon Species of wild sheep now confined to Corsica and Sardinia (*Ovis montanus*). Standing 28 in. at the withers,

it has short, non-woolly hair, with abundant under-wool; the ram's curved horns may attain a length of as much as 29 in. With the Asiatic urial it was probably the ancestor of the domesticated sheep, with which it interbreeds freely.

Mould Loose, fine, crumbly earth, such as constitutes surface soil. Leaf-mould is rich in organic matter. The word also denotes furry growths of minute fungi, developed on animal and vegetable substances exposed to damp, e.g., the blue mould (*Penicillium glaucum*), on bread and cheese.

Moulding Term applied in architecture and joinery to a concave or convex surface on wood or stone. It forms a continuous uniform groove or projection ("staff"), or a combination of both. Of Greek and Roman mouldings there are eight types which can be geometrically constructed—the fillet, astragal, torus, ovolo, scotia, cavetto, cyma recta and cyma reversa. In Renaissance architecture the moulding was confined chiefly to the cornice, but in Gothic moulding became very elaborate, especially on arches.

Moulmein Seaport of Burma, at the mouth of the Salween River. There is a harbour protected by an island, and from it a great quantity of teak is shipped. Pop. 61,300.

Moulting Periodical shedding of the outer covering of animals, especially the feathers of birds. It occurs at least once annually, after the breeding season; a second moult occurs in the cases of some birds with a special breeding-plumage, e.g., ducks; while there may be even a third for the white winter dress, e.g., ptarmigans. Snakes slough their skins correspondingly. The name denotes also analogous, but not identical, processes in various invertebrates, e.g., the external shell of crustaceans and the skin of insects during growth.

Moulton John Fletcher, Baron. British lawyer. He was born on Nov. 18, 1844, and in 1874 was called to the Bar, where he established a practice in patent law, on which he became a supreme authority. In 1906 he was appointed a Lord Justice of Appeal, and in 1912 a Lord of Appeal with the title of Baron Moulton of Bank. He was first chairman of the Medical Research Committee under the National Insurance Act (1912), and was Director General of Explosive Supplies during the war. He died March 9, 1921.

Mountain Term used for an elevation of the earth's crust. There are two types: tectonic mountains, which are due to accumulation or deformation of the earth's crust, and subsequent or relict mountains, representing the remains of ancient elevated areas. There is no standard height for a mountain. In Great Britain the name is applied to peaks over 2000 ft. high.

Mountain Name used for a political party that arose during the French Revolution. They were a group of Jacobins, which included Danton and Robespierre. The name was given because its members sat on benches somewhat higher than the others in the chamber. About 100 in number, they were responsible for the Reign of Terror.

Mountain Ash Urban district and market town of Glamorganshire, on the River Cynon, 18 m. from Cardiff, on the G.W. Rly. The district

includes, in addition to Mountain Ash itself, Aberpennar, Cwmpennar and Abereynon. The principal occupation is coal mining. Pop. (1931) 38,381.

Mountaineering Climbing of mountains as a pastime or adventure. It developed in the 19th century, when Frenohmen, Englehorn and others began to climb some of the peaks of the Alps. One by one the summits were reached, clubs were formed, a technique of climbing was developed, a literature came into being—and mountaineering had become a widely practised sport. The Alpine Club was founded in 1857. Mountaineers went to Africa and America, where mountains of over 20,000 ft. were climbed, these including Aconcagua, Mt. St. Elias and Kilimanjaro, until almost the only unclimbed mountains were the highest peaks of the Himalayas. Several expeditions have gone out, but they have so far failed to reach the summits of Everest or Kanchenjunga or Godwin-Austen, the three greatest peaks.

Mountbatten Name taken in 1917 by the members of the royal family until then known as Battenberg. One became the Marquess of Milford Haven. See BATTENBERG.

Mount Edgcombe Headland in Cornwall, near Plymouth. From it the old Cornish family of Edgcombe takes the title of earl, which dates from 1789. The family seat is Mount Edgcombe, and the earl's oldest son is called Viscount Valletort.

Mount Grace Ruined abbey in Yorkshire. About 4 m. from Northallerton. It was once a house of the Cistercian monks. It was destroyed at the Reformation, but considerable ruins remain, including monks' cells, each with its oratory and garden, and parts of the church and the chapter house.

Mountmellick Market town of Leix, Irish Free State, 9 m. from Maryborough and 50 from Dublin, on the G.S. Rlys. It is an agricultural centre. Pop. 2280.

Mounts Bay Arm of the sea off the coast of Cornwall. It is 21 m. across, and Penzance is the chief place on its shores. It also includes St. Michael's Mount.

Mountsorrel Town of Leicestershire, on the Soar, 7 m. from Leicester. The chief industry is the mining of granite from its famous quarries.

Mount Stephen George Stephen, 1st Baron. Railway director. Born in Scotland on June 5, 1820, he went to Canada in 1850 and became in turn Director, Vice-President and President of the Bank of Montreal. He was also director of several railways, and President of the C.P. Rly., which opened up trans-continental traffic in Canada. He died on Nov. 29, 1921.

Mount-Temple William Francis Cowper-Temple, Lord. English politician. He was born in 1811. He was Lord of the Admiralty, 1846-52, President of the Board of Health and Privy Councillor, 1855, and in 1865-66 Commissioner of works. He died in 1888.

Mount Vernon Town of Virginia, 15 m. from Washington. It is famous as the home of George Washington, whose house there became a

national memorial in 1859. Nearby is his tomb. There are several other places of this name in the United States, the largest being a city in New York state, on the Bronx River, 18 m. from New York. Pop. 61,500.

Mouse Name of various small rodents. British species include the cosmopolitan house mouse (*Mus musculus*), the tiny nest-building harvest-mouse (*Micromys minutus*), and the long-tailed field-mouse (*v.v.*).

Mousterian Name given to an epoch of the Palaeolithic age. It is derived from the Cave of Le Mouster in Dordogne, where flint implements, as well as bones of the mammoth, woolly-haired rhinoceros, cave-bear and musk-ox were found. The climatic conditions appear to have been cold and damp, but the tools found show an advance upon those of the previous period.

Mouth Median opening in the head of an animal. It leads to the mouth cavity into which open the alimentary canal, the respiratory organs and salivary glands. The mouth or buccal cavity in the higher types is provided also with organs for prehension and retention of the prey, or the tearing and grinding of food, namely the teeth. Salivary glands are present, and in mammals the tongue, a highly muscular upgrowth from the floor of the mouth, reaches its highest development.

Moynihan Lord. English surgeon. Berkeley George Andrew Moynihan was born in Malta, Oct. 2, 1865, and, having trained as a doctor, began to practise in Leeds. He was appointed professor at the university there and made a great reputation. He served with the R.A.M.C. throughout the Great War, and in 1922 was made a baronet, becoming a baron in 1929. He has written several books on surgical subjects.

Mozambique District of Portuguese E. Africa. A small island, 3 m. from the coast, was named San Sebastian de Mozambique and became known by the latter part of the name. On this island the Portuguese founded a settlement in 1508, and this became the seaport of Mozambique. It has a harbour.

The name was extended from the island to the mainland, where a large district of Portuguese E. Africa is called Mozambique. This covers 295,000 sq. m. between Tanganyika and S. Africa, and contains the port of Lourenço Marques. Adjoining it is the district covering 53,000 sq. m. governed by the Mozambique Co., where is the port of Beira. Mozambique has railway connections with the interior of Africa, and produces sugar, maize and cotton. Pop. 3,483,000.

Mozart Wolfgang Amadeus Chrysostom. Austrian musician and composer. Born on Jan. 27, 1756, he made his first professional European tour when six years old. After a period of financial difficulty he produced, with tremendous success, the *Marriage of Figaro* (1786); and in 1787 *Don Giovanni* which was equally successful. He was appointed Kammer Musicus to the Emperor Joseph II., at whose orders he wrote *Così fan Tutti*.

His financial difficulties continued, and while making money for others, his generosity and carelessness kept him poor. *The Magic Flute* was produced in 1791. He combines the richness and melody of the Italian school with a knowledge of harmony and instrumentation

gained by his strict training in the German school. He died on Dec. 5, 1791.

Mucilage Name given to a viscous solution of a gum, occurring naturally in many seeds, tubers, stems and other plant tissues. Commercial mucilage, adhesive in character, is a solution of gum arabic, or of British gum, a form of dextrin. A mucilage of less adhesive power is made from gum tragacanth, and used in calico-printing, pharmacy and the manufacture of oil emulsions. Another type of mucilage is the pectin, prepared from fruits and used in jelly and jam-making.

Mucous Membrane Term applied in zoology to the membrane lining the stomach and other parts of the alimentary canal, bladder and various ducts of the body. It consists of a layer of loose connective tissue or submucosa over which is an epithelium containing glandular cells secreting mucus or digestive juices.

Mudfish Name given to certain fishes having the peculiar habit of burying themselves in the mud during a dry season. Among the ganoid fishes, the bowfin (*Amia calva*) of N. America can survive drought for a time by inhaling air into its swim-bladder. Several other mudfishes belong to the dipnoi or lung-fishes, characterised by a lung-like organ for air breathing, these are the protopneustes of S. Africa and lepidotriton of Australian rivers.

Mudie Charles Edward. English publisher and founder of Mudie's Lending Library. Born on Oct. 18, 1818, the son of a second-hand bookseller, he started a stationery and book-selling business in Bloomsbury, London, and in 1842 began to lend books. This innovation proved so successful that in 1852 he transferred his "select library" to larger premises in New Oxford St., and branches were also established elsewhere in 1860. In 1864 Mudie's became a limited company. He died on Oct. 28, 1890.

Mudros Town and port of Lemnos. It is on the S. coast of the island, and was used as a base by the British during the campaign in Gallipoli in 1915. Here on Oct. 30, 1918, was signed the armistice between the allies and the Turks.

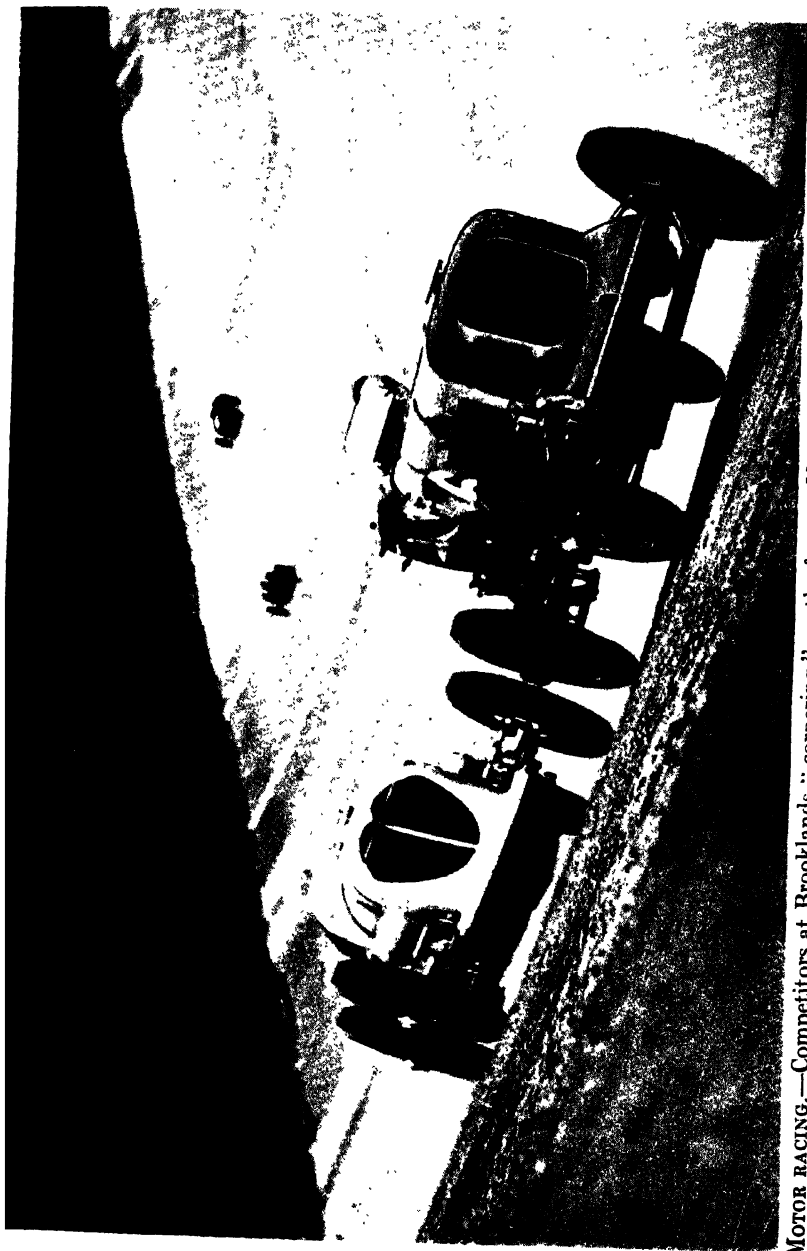
Muezzin Official in a Mohammedan mosque. He is appointed by the imam to proclaim from the platform of the minaret, or from the side of the mosque, the regular hours of prayer. These are at dawn, noon, 4 P.M., sunset and nightfall.

Mugwort Perennial composite herb indigenous to Europe, Asia and N. Africa (*Artemisia vulgaris*). Woolly, aromatic, with erect, angled, grooved, reddish stems 2-4 ft. high, it has large alternate leaves, silky beneath and crowded sprays of small reddish-yellow flower-heads.

Muirkirk Town of Ayrshire, 26 m. from Ayr on the River Ayr. The chief industries are the mining of coal and iron ore.

Mukden City of Manchuria, the capital of a province, and an important trading centre. The city is surrounded by outer and inner walls and has a university. Pop. 250,000.

Near Mukden in Feb.-March, 1905, the Japanese gained a decisive victory over the Russians.



MOTOR RACING.—Competitors at Brooklands "cornering" on the famous Mountain Track. This amazing photograph was taken when the cars were travelling over the concrete paving at nearly two miles a minute. *(Daily Herald)*

Mulatto Word, diminutive of mule, denoting in Spanish-America a half-breed, the offspring of a white and a negro parent. The skin-colour and hair are usually intermediate. The offspring of a mulatto and a white is a quadroon (one-fourth black); that of a quadroon and a white an octoroon (one-eighth black).

Mulberry Genus of deciduous trees or shrubs, allied to the nettle order, natives of the N. hemisphere (*Morus*). They have toothed leaves, often three-lobed and bear collective fruits each formed of many coalesced flowers. The black mulberry, of Persian origin, with purplish-black fruit, was cultivated in antiquity and reached Tudor England. The Chinese white mulberry, with white fruit, whose leaves silkworms prefer, grows extensively in Mediterranean lands. The N. American red mulberry, 40-70 ft. high, with red fruit, yields useful timber.

Mulch Gardening operation. It consists of placing material upon the soil for the purpose of protecting tender plants from frost, or preventing evaporation in hot weather, or of supplying nourishment to plants.

Mule Name given to the hybrid offspring of the union of a male ass and a mare, resulting in an animal of considerable strength and hardness. Mules are more suitable than horses for certain kinds of work, such as draught and pack work in arid or mountainous country. They are much used for army work. Large mules are usually the progeny of Spanish or French asses.

Mule Machine used in cotton spinning. It was invented by Samuel Crompton in 1779, its name being given because it was a cross between the spinning jenny of Hargreaves and the throstle of Arkwright. The mule was improved later by Richard Roberts, and in its modern form is self-acting, functioning as an intermittent spinner and winder. Some mules are of considerable size carrying 180 to 210 spindles borne on steel carriages. Mule-spun yarn is even and regular, and of fine quality.

Mulheim City and river port of Germany, on the Ruhr, 16 m. from Düsseldorf, and a centre of the coal and iron industries. There is a good harbour and many manufacturing establishments. Pop. 127,400.

Another Mulheim is a town on the Rhine opposite Cologne. It is a large manufacturing centre with a good harbour in the river. Pop. 1,000.

Mulhouse Town of Alsace, France, on the Ill, 58 m. from Strasbourg. Also served by the Rhine-Rhône Canal, it is a manufacturing town, the industries including the production of textiles. Mulhouse was a free city from 1198 to 1797, when it was taken by France, and in 1871 was handed over to Germany. The French entered it in Aug., 1914, but were soon driven out. Pop. 95,000.

Mull Island of Argyllshire, 7 m. from Oban. It covers 351 sq. m. and is the second largest island of the Inner Hebrides. Tobermory is the chief town. The interior is mountainous, some peaks being over 3000 ft. high. The coast is very much indented. The inhabitants are engaged in grazing cattle. Pop. 4000.

The Sound of Mull separates the island from the mainland. It is 20 m. long and from 3 to 3 m. wide.

Mullah Mohammedan word for a teacher or official. In Egypt and other Mohammedan countries it is used especially for one who administers the law. In India the word is used for a schoolmaster. In Somali land leaders called "mad mullahs" have on several occasions raised rebellions.

Müller George. Preacher and philanthropist. Born near Halberstadt on Sept. 27, 1805, he came to London in 1829, and became the minister of a nonconformist chapel at Teignmouth, where he abolished pew rents, gave up his own salary, and depended on voluntary gifts. In 1836 he founded an Orphan House at Ashley Down near Bristol, and in 20 years, through "prayer to God" and without appeals, had received £84,441 for the orphans. He wrote *The Lord's Dealings with George Müller*. He died on March 10, 1898.

Müller Hermann. German politician. He was born May 18, 1876. A strong socialist, he was made editor of a socialist newspaper in Silosia, and in 1906 was chosen one of the leaders of the socialist party in Germany. In July, 1914, he visited Paris and Brussels in the interests of peace, but his efforts were futile, and he gave his support, somewhat reluctantly, to the war policy of Germany. He undertook the editorship of *Vorwärts*, and in 1917 was made an Under-Secretary of State.

In June, 1919, when Germany was enraged by the terms of the peace treaty, he joined the Cabinet founded by Gustav Bauer as Minister for Foreign Affairs and as such signed the treaty at Versailles. This made him very unpopular, but he held on his way and in 1920 was elected for the first time to the Reichstag. In Jan. of that year he had succeeded Bauer as Chancellor, and during the next few months he carried out hurriedly some important social reforms. In June, 1920, however, he was forced to resign, and for the next eight years he led the socialist party in the Reichstag. In May, 1928, he again became Chancellor, with Stresemann as his Foreign Secretary, and he remained in power until March 1930. He died March 20, 1931.

Müller Max. See MAX MÜLLER.

Mullet Name of two unrelated kinds of food fishes. Two forms of each occur on British coasts. Of red mullets (*Mullus*), the striped or surmullet, 6-16 in. long, is commoner than the smaller plain red. Of grey mullets, (*Mugil*), the thin-lipped, 12-20 in. long species, frequenting brackish estuaries, is commoner than the smaller thick-lipped.

Mulligatawny (Tamil, *milagu-tan-nir*, peppercorn). East Indian soup. Made with boiled meat or chicken and rice, it is highly seasoned, and contains sufficient curry powder to render it very hot to the palate.

Mullingar Market and county town of Co. Westmeath, Ireland, on the River Brosna, 50 m. from Dublin. The town has an agricultural trade, and horse and cattle fairs are held. Pop. 4500.

Mullion Architectural term for the vertical division in a window, usually of stone or wood in England but sometimes of brick. It arose from the gradual reduction of the pier or piers between two

coupled lancet windows. The mullion is not seen in pure Renaissance architecture, but is chiefly late Gothic.

Mulready William. Irish painter. He was born at Ennis on April 30, 1786, and later removed to London. He entered the Royal Academy in 1800, and found his most successful sphere in such subjects as "A Roadside Inn," "The Barber's Shop" and "Punch." His "Idle Boys" procured him his A.R.A. in 1815, and he was made R.A. in 1816. He is perhaps best-known for his illustrations to the *Vicar of Wakefield*. He died on July 7, 1863.

Mumbles Watering place of Glamorganshire, on Swansea Bay, 202 m. from London. Nearby are Mumbles Head and two small islands.

Mummy Dead body prepared for burial according to processes devised in ancient Egypt. To postpone natural decay, it was at first soaked in crude natron; subsequently methods employing bitumen, spices, honey and drugs were introduced. From the 21st dynasty onwards, brain and entrails were removed, the body-cavities repacked, the whole enswathed in smeared linen bandages inscribed with ritual texts and enclosed with amulets and falcon statuettes in a mummy-case. The practice extended to cats, crocodiles and other sacred animals. It ceased about A.D. 700.

Mumps Infectious fever with involvement of the parotid salivary glands.

The symptoms are pain and swelling of the glands under the ear, with feverishness and loss of appetite. The patient should be kept in bed on a liquid diet until the temperature is completely normal, and should be isolated for about three weeks. A doctor should always be called. Incubation period is 14-21 days.

Münchhausen Baron Von. German soldier and storyteller. Karl Friedrich Hieronymus Münchhausen was born in Hanover in May, 1720, and fought for the Russians against the Turks. He won a great reputation by the wonderful stories he told ostensibly about his warlike and other adventures, but largely the products of his imagination. These were collected, and in 1785 they were published in English as *Baron Münchhausen's Narrative of his Marvellous Travels and Campaigns in Russia*. He died in 1797.

Mundesley Village and holiday resort of Norfolk, 7 m. from Cromer and 135½ from London. Pop. 770.

Mungo Scottish saint, believed to have lived in the 6th century A.D. The patron saint of Glasgow, his name means in Gaelic "dear one." He is known more usually as Kentigern (q.v.).

Munich City and capital of Bavaria. Known to the Germans as München, it is situated on the Isar, and is the fourth largest city in the German republic. It is an important art centre, the Peria Rothen and the Glyptothek containing fine collections of paintings and sculpture.

The chief industry is brewing, Munich beer being world famous, while there are also manufactures of machinery and scientific instruments, and wood-carving is much practised as a local craft. It has a broadcasting station (533 M., 1.5 kW.). Pop. 680,704.

Municipality Term used for a town or city, which is organ-

ised for self-government under a municipal corporation. It is also used for the governing body. In Great Britain, a corporation consists of a mayor, or provost, at the head, aldermen and councillors. By its seal, it acts as a person, and can sue and be sued, and it has powers to hold lands and to make by-laws and enforce by penalties, as long as they are reasonable, and do not violate the charter.

Municipal Trading. In some towns, as in Blackpool, where municipal enterprise provides amusement, and Birmingham, where there is a Municipal Bank, the Socialist idea of a municipal authority acting as a private enterprise is carried out, but mostly, the towns confine themselves to housing and town-planning, water-works, highways, electric light supply, sewers, tramways, elementary education, gas-works, small-holdings and parks, including tennis-courts and golf-courses.

Housing was undertaken, largely after Wheatley's Act of 1924, by the local authorities when the building was executed under the Joint Town Planning committees.

The water supply is in the hands of about two-thirds of the public authorities and the electric supply, complicated by the appointment of the National Electricity Commission, and the Central Electricity Board, has only been undertaken by about half the local authorities.

Munitions Term applied to the materials used in warfare. It includes both guns and ammunition, while the development of trench warfare and the use of poisonous gases has widened the range of materials to include grenades, bombs, mortars, steel helmets, various chemicals, etc. In the Great War the production of munitions being on a large scale, a government department, the Ministry of Munitions, was created in 1915 to control production and co-ordinate the various industries concerned. For this purpose the metal, engineering and chemical industries were mobilised, and national factories set up, with the result that production was increased with an economy of materials. The ministry came to an end on March 31, 1921.

Munster Province of Ireland. In the S.W. of the country, it is wholly within the Irish Free State. It contains six counties, Clare, Kerry, Cork, Tipperary, Limerick and Waterford, and covers 9300 sq. m. At one time it was a separate kingdom, and was divided into Thomond, in the N., and Desmond in the S.

The title of Earl of Munster is borne by the family of Fitzlarence. The 1st earl (created 1831) was a son of William IV. and Dorothea Jordan.

Münster City of Westphalia, on the Aa, 78 m. from Cologne. The industries include the manufacture of textile goods and beer, printing works, and sugar refineries. An event in the history of the city was the kingdom set up by the Anabaptists under John of Leiden in 1535. Pop. 90,300.

Another Münster is a town of Alsace, in the Vosges district, 11 m. from Colmar. Pop. 6000.

Muntz Metal Widely used non-ferrous alloy of the group of brasses. Called also yellow metal it contains from 60 to 62 per cent. of copper and 40 to 38 per cent. of zinc. It is an alloy of high tensile strength, and resists corrosion well. Formerly used for sheathing ships, it is

employed now for propellers, and also for bowls, trays, etc.

Murat Joachim. King of Naples. Born on Nov. 25, 1767, he distinguished himself as cavalry general under Napoleon by his fearlessness at the battle of the Pyramids, and later at Marengo, Friedland and Moscow. He was brother-in-law to Napoleon, who made him King of Naples in 1808. Murat abandoned Napoleon in 1814, to ally himself with Austria and England, but was himself abandoned later by his allies, and forced to flee his kingdom. Trying to recover it, he was captured and shot on Oct. 13, 1815.

Murcia City of Spain on the River Segura, in the S. of the country, 25 m. from Cartagena. It is a large manufacturing and trading centre. Near the city are the celebrated gardens of Murcia, where vines, mulberries, olives, etc., grow in great profusion. Pop. 124,000.

Murcia was the name of a Moorish kingdom which existed in the 13th century.

Murillo Bartolomé Esteban. Spanish painter. Born at Seville in 1617, he studied under local painters and, struggling to earn a living by peddling pictures at fairs, he saved sufficient money to enable him to visit Madrid where he became a pupil for a time of Velasquez. He returned later to Seville and obtained commissions from the clergy, and developed his own style of painting. He interpreted religious subjects in homely realism understood by the people, but his work in general suffered from lack of restraint and selective power. A number of his pictures are in the Louvre, at Madrid, and the London Galleries. He died April 3, 1682.

Murman Name given to the coast of the Kola Peninsula. In the extreme N. of Russia, this lies between the Kola Bay and the White Sea, and is 200 m. long. On Kola Bay is the port of Murmansk, which is the terminus of a railway from Leningrad.

Early in 1918 a force composed of British, French and American troops occupied Murmansk and the neighbourhood, this being part of an operation that included the expedition to Archangel. During 1919 the troops gained possession of about 400 m. of the railway and, winning several successes over the Bolsheviks, advanced as far as Lake Onega. The enterprise, however, offered no prospect of permanent success and towards the end of the year the force was withdrawn.

Murray River of Australia, rising in the Australian Alps and flowing to the sea through Lake Alexandrina. At the mouth are sand-dunes which make the navigation of the river possible only for small vessels. The water of the Murray is used for irrigation purposes, being held up at the dune reservoir where the Mitta falls into the Murray, so that it is available in the dry season. Improvements have also been made in its lower course to facilitate navigation. For the greater part of its course it forms the boundary between the states of New South Wales and Victoria. It is 1500 m. long, and its chief tributaries are the Darling and Murrumbidgee.

Murray Sir David. Scottish painter. Born at Glasgow, 1849, he was elected A.R.A. in 1891, and R.A. in 1905. In 1917 he was made President of the Royal Institution of Painters in Water Colours, and was knighted in the following year.

Among his finest pictures are "In the Country of Constable," "Young Wheat," "River Road," "Marigolds," "Hampshire" and "Gorse."

Murray George Gilbert Aimé. English scholar. Born in Sydney, June 2, 1866, he had a remarkable career as a classical scholar at Oxford. He was made a fellow of New College, Oxford, and in 1889 Professor of Greek at Glasgow. In 1908 he returned to Oxford as Professor of Greek. To scholars Murray is known as the author of *A History of Ancient Greek Literature*, *The Origin of Tragedy*, *The Rise of the Greek Epic* and other books, and to a wider public for his translations of the plays of Euripides. He is one of the leading supporters of the League of Nations.

Murray Sir James Augustus Henry. Scottish lexicographer, born at Denholm, Scotland, on Feb. 7, 1837. He founded his reputation as a philologist with *Dialects of the Southern Counties of Scotland* in 1873. His great work was the editing of the Philological Society's *New English Dictionary* which was begun at Mill Hill in 1879 and continued at Oxford with several successive joint-editors. He died on July 26, 1915.

Mürren Pleasure resort of Switzerland, in the Bernese Oberland, 3 m. from Lauterbrunnen. It is 5000 ft. high, and is a good centre for the ascent of the Jungfrau and other peaks.

Murrumbidgee River of New South Wales, rising in the Australian Alps, and flowing first N. and then W. to the Murray. Its length is 1350 m. for about 500 of which it is navigable. Its chief tributary is the Laachan.

Muscat Seaport of Arabia, the chief port of Oman. It is on the Gulf of Oman, and from it some of the products of the country are exported. It was a Portuguese possession from 1508 to 1650. Pop. 20,000.

Muscatel General name for wines of similar grapes. Sometimes red, but mostly white, with musky flavour and more or less sweet and elegant taste, they are produced in Languedoc and other French wine-growing districts, on the slopes of Vesuvius, in Capri, Sicily, Crete, Switzerland, Australia, S. Africa and elsewhere.

Muscle Tissue in an animal's body concerned in the power of movement, and consisting of bundles of fibres, each fibre being a thin thread of muscle substance about $\frac{1}{16}$ inch in diameter and surrounded by a delicate sheath or sarcolemma. The muscle substance is probably of more or less fluid consistence, and has the special property of contractility on the application of a stimulus. Muscles controlled by the will are termed voluntary, others not under the will, involuntary.

Muscovy Former name for Russia. The district around Moscow constituted the realm, until the time of Peter the Great. It was ruled by princes who became known later as tsars. See RUSSIA.

The Muscovy Duck is found in America. It nests in the trees and lives in marshy districts. The bird has been introduced into Britain.

Muse Goddess of song. Greek legend represented the Muses as nine in number, presiding over the different kinds of

poetry, arts and sciences. They were the daughters of Zeus and Mnemosyne and the companions of Apollo. The nine were Clio, the muse of history, represented with an open roll of paper or a chest of books; Euterpe, the muse of lyric poetry, represented with a lyre; Thalia, the muse of comedy and idyllic poetry, represented with a mask, a shepherd's staff or a wreath of ivy; Melpomene, the muse of tragedy, represented with a crook, the club of Hercules, or a sword, with vine leaves on her head and wearing the cothurnus; Terpsichore, the muse of dawn and song, represented with the lyre; Erato, the muse of erotic poetry, also with a lyre; Polymnia, the muse of the hymn; Urania, the muse of astronomy, represented with a staff pointing to a globe; and Calliope, the muse of epic poetry, represented with a tablet and stylus. Mount Helicon, with its sacred fountains, and Mount Parnassus were sacred to the muses.

Museum Building or part of a building appropriated as a repository for preserving and displaying objects of antiquity, science, natural history and art. The first great national museum was the British Museum, London, 1753; the Louvre Museum, Paris, was founded 1793. There now exist many important general collections, e.g., the Metropolitan Museum of New York; special collections, e.g., the Wellcome Historical Museum, London; and open-air museums, e.g., Skansen, Stockholm.

Mushroom Name indefinitely applied to several of the larger fungi, especially if edible, although indistinguishable by any rough-and-ready means from non-edible forms. The common edible mushroom or agaric (*Psalliota campestris*), successfully cultivated, especially in France, for more than 200 years, comprises a cylindrical stalk supporting an umbrella-shaped cap, 3-5 in. across, with coloured gills beneath which ultimately blacken. Other recognisable edible fungi include the fairy-ring champignon and the morel. A toadstool (*Amanita phalloides*) causes nine-tenths of all deaths from so-called mushroom-poisoning. See KETCHUP.

Music Melody of harmony; a tone or tones having any or all of the features of melody, rhythm or consonance. The first idea of music was that it was any art over which the muses presided, but after a time it was narrowed down by the exclusion of poetry, dancing and other arts, although music was still closely associated with them.

Among the Greeks music was generally subordinate to verse and was rather limited in the direction of expression, because the instruments used, chiefly lyre and flute, were simple. Nevertheless, it set up the diatonic scale or modes and the rudiments of key relationships. There had been music before the time of the Greeks, indeed, from the very beginning of human life, but it was of the same simple kind. Among the Jews, however, as detailed in the Bible, the use of musical instruments seems to have been somewhat more advanced. Music played a great part in their religious and other ceremonies, as it did in the festivals of Greece.

Music owes much to the church and great advances were made in the art during the Middle Ages. The ecclesiastical modes were taken from the Greeks; new ones to indicate the pitch of tones were invented and staff notation was developed. The tetrachordal, or fourfold, unit was superseded by the hexa-

chordal or six-fold; descant, or simultaneous melody, was replaced by measurable music and thence came counterpoint. Very elaborate settings for the mass and psalms were composed, especially by the great Italian masters, culminating in Palestrina. Concurrently in the 10th-16th centuries secular music was making great advances. It was the age of the minstrels, the troubadours and the minnesingers.

Modern music owes a vast debt to Bach, who was largely instrumental in developing polyphony. The establishment of the major and minor scales, with the octave as a unit, and of equal temperament, made modulation in any key possible, and so harmony was developed.

Since the time of Bach there have been great advances in both vocal and instrumental music. Vocal music has broadened out into the opera, oratorios and the lyric. Instrumental music has been aided by improvement in the instruments, which gave scope for the superb productions of Haydn and especially of Beethoven. Other great masters are Mozart and Wagner in opera and Handel in oratorio.

With the 20th century the outstanding development of music has been the widespread use of the gramophone and other mechanical devices for reproducing it and its transmission by wireless.

MUSIC AS A CAREER. Though an overcrowded profession, music, which now comprises so many branches, still offers considerable scope for performers and teachers of real talent and personality. Success in either capacity, however, is by no means easy to achieve, and requires many years of training.

Orchestral players for broadcasting, theatres, cinemas, dancing, etc., should be steadily in demand, and have fixed rates of pay. Organists, with city or cinema appointments, may obtain as much as £500 per annum, and whole-time cathedral posts are worth about £300-£500 with a house as well as allowing opportunity for pupils to be taken.

The Royal Academy of Music and the Royal College of Music in London are the most famous centres of study for all branches of the profession, the fees being fourteen guineas a term at the former and twelve at the latter. Other well-known training schools are the Royal Manchester College of Music, the Guildhall School, Trinity College, and London Academy of Music.

For Music Teachers, courses are provided at the Royal Academy of Music, York Gate, Marylebone Road, N.W.1.; the Royal College of Music, Exhibition Road, S. Kensington; Trinity College of Music, Mandeville Place, W.1; and the Guildhall School of Music, John Carpenter Street, E.C.4. Courses are also provided at certain reputable institutions in the provinces.

Musk Perennial herb of the figwort order, native of Oregon (*Mimulus moschatum*). The nearly regular yellow flowers, diffuse hairy stems, and thin oblong leaves, exhaling a musky odour, make it a favourite plant for window-boxes and hanging baskets. The name also denotes a native British musky-smelling stork's-bill, *Erodium moschatum*, with rose-purple flowers. See MONKEY FLOWER.

Musk Strong-smelling substance secreted in a sac-like gland by the male musk deer. The animal is killed and the gland removed, the dried secretion being sent to market, "in pod" or, after extraction, "in grain." The perfume is powerful and enduring.

Musk Deer Small ruminant inhabiting the mountains of Central Asia (*Moschus moschiferus*). Clumsily-built, 20 in. high at the shoulder, the males have projecting sabre-like upper-jaw tusks 3 in. long and bear an abdominal gland containing the perfume before-mentioned. The thick, coarse, brittle hair is greyish-white, the hind legs long, and the toes splayed. Neither sex bears antlers.

Musket Term employed for a firearm of the smoothbore type. It was used chiefly for arming infantry. Muskets were either matchlocks fired by applying a match to the powder, flintlocks, or breech loaders. The term musketry is still used officially for shooting regulations, and for schools of instruction in the use of firearms.

Musk Ox Arctic American bovine ruminant (*Ovibos moschatus*). Sharing ox-like and sheep-like characters, the male horns being wide and flattened, it resembles a large, hairy ram, with long, thick, brownish coat; its flesh has a musky odour. It is now confined to N.E. Canada and Greenland, from 64° N. lat. to Grinnell Land.

Muslin Fine, plain-weave cotton fabric used for dresses, hangings, curtains, etc. Named from Mosul, Indian makes were introduced into Stuart England, and still come from Madras and other famous centres. The invention of mule-spinning developed a great industry in Lancashire, Scotland, Switzerland and N. America.

Musquash N. American rodent of the vole subfamily (*Fiber zibethicus*). It is also called musk-rat, a musky-smelling gland being present in both sexes. Stoutly built, 12 in. long, with compressed 10 in. tail, and partly webbed hind feet, it is of amphibious habit. Its soft, velvety, dark-brown fur is extensively used by furriers.

Mussel Popular name for bivalve molluscs constituting large marine and freshwater families of world-wide distribution. The common sea-mussel of British coasts, *Mytilus edulis*, as well as being much prized for human food, is also a valuable bait for deep-sea fishing. British freshwater mussels include the river-mussel and pearl-mussel, *Unio*, and the swan mussel, *Anodonta*.

Musselburgh Burgh and seaport of Midlothian, at the mouth of the Esk, 6 miles from Edinburgh. There is a harbour at Fishcove for the fishing fleet, while an important industry is paper-making. Here is Loretto School (q.v.). Pop. (1931) 16,996.

Musset Alfred de. French romantic poet, author and playwright. Born on Dec. 11, 1810, he was admitted to the circle of French Romantics after leaving school, and published in 1830 with success his first poems, *Contes d'Espagne et d'Italie*. Extremely sensitive, his life was a series of emotional crises, the greatest of which came after his break with George Sand. As the result of his suffering at her unfaithfulness, he wrote his greatest lyric poems, *Les Nuits*, which mark the highest point in French lyric verse. He wrote also several successful light comedies, some of which are still produced. He died on May 2, 1857.

Mussolini Benito. Italian statesman. Born at Varano di Costa, Dovia, in the province of Forlì, July 29, 1883, the son of a blacksmith, he attended an elementary school, and later a boarding-school

at Faenza, and gained a teacher's certificate at Forlìmpopolì, after which he taught for a year at Gualtari, Reggio Emilia. He went to Switzerland in 1902, and while doing manual labour, studied French at Lausanne University, read widely, made speeches, organised unions and strikes, and was expelled from one canton after another.

In 1905 he carried out his military service with the Bersaglieri. He founded the weekly paper, *La Lotta di Classe*, in 1910 at Forlì, and was imprisoned for his articles. He became secretary of the Socialist Society at Trent, and was banished for his "irredentism" in *Il Popolo*. He then became editor of the Milan social paper, *Avanti*. When war broke out he wished Italy to remain neutral, but was converted to the Allies' cause, and for this was expelled at a Socialist Congress at Milan in Nov. 1915. He founded the paper *Il Popolo d'Italia*, and when Italy entered the War in 1915, volunteered as a private soldier in the Bersaglieri. He fought in the trenches until Feb. 22, 1917, when he was seriously wounded by the explosion of a mortar.

The following September he again became editor of *Il Popolo*, now preaching against pacifism. The end of the war found Italy in such a state of disorder that Mussolini judged the time for his counter-revolution rapidly approaching, and on March 23, 1919, founded the Fascist Institution. (See FASCISM).

When the Fascists marched on Rome, Victor Emmanuel dismissed his Prime Minister, Facta, and invited Mussolini to enter Rome on Oct. 30, 1922. Since then Mussolini has been the dictator of Italy, holding the premiership, and at one time the ministries of Foreign Affairs, Interior Colonies, War, Marine, Air and Labour.

Through the Fascist system Mussolini has put down all opposition, and led a united and re-vitalised Italy into the forefront of progress. Dissenters have been summarily dealt with, and centralised methods of government, backed by extensive social legislation, have increased the material well-being of the country, while Fascist education has increased the national solidarity. He has encouraged excavation and research into the antiquities of Rome to inspire the nation with a sense of its glorious heritage.

No less remarkable was his achievement in 1929 of the treaty which finally settled the Roman Question, the Pope thereby becoming sovereign of the newly created state of the Vatican City. Subsequent differences with the Vatican on questions of education were composed to the satisfaction of both parties, and further enhanced his reputation as a statesman.

Mussolini's foreign policy has been directed to maintaining the influence of Italy in the Mediterranean and strengthening her position as a European power. In 1924 he negotiated a settlement with Yugoslavia in which the Italian claim to Fiume was recognised. In 1926 he placed Italian relations with Greece on a friendly footing, and vigorously supported the independence of Albania. Italian influence in North Africa has also been maintained. Mussolini's policy with regard to disarmament, reparations and war debts has been in harmony with that of England. He has consistently advocated disarmament by stages. In respect of reparations, he has pursued the policy of the clean slate, and has urged the cancellation of war debts as a necessary preliminary to the economic restoration of Europe.

Mustang Semi-wild horse of the American prairies. Descended from

European horses of 18th-century introduction, mustangs live in troops, are very hardy, and are often broken in for riding.

Mustard Name of several species of annual plants of the genus *Brassica*. They belong to the order *Cruciferae*, and are natives of Europe, Asia, and North Africa. The dark brown seeds of the black mustard, *B. Nigra*, are ground with those of the white mustard, *B. alba*, with or without the addition of starches, to form the well-known condiment.

Mustard Oil is an acrid pungent oil distilled from black mustard and used medicinally for external application.

Mustard gas is the name given to a noxious gas—(dichloridethyl) sulphide—used in the Great War. It causes, when inhaled, severe inflammation of the lungs.

Muswell Hill District of London, about 6 m. to the north of the city, and reached by the L.N.E. Ry. A residential area, it is outside the county, being in the Borough of Hornsey.

Mutation Term applied in the study of heredity to one of the types of variation which occurs in the offspring of both animals and plants. This type is known as discontinuous variation or mutation, and is characterised by the appearance of new forms differing considerably from their parents and having no intermediate forms. According to some modern biologists, mutation is the basis of evolution, affording a means by which the unfit are eliminated by natural selection.

Mweru Lake of Africa, 90 miles to the west of Lake Tanganyika, discovered by David Livingstone in 1867. It is 76 miles long, and the River Luapula falls into it, while around it is a marsh district which is a game preserve for the elephant. The lake belongs to Belgium and Rhodesia.

Mycenae Ancient Greek city in the Peloponnesus. Here, on a natural rock in N.E. Argolis, Bronze-age immigrants developed a remarkable civilisation, marked by Cretan fashions in art. After the fall of Cnossus this civilisation dominated the E. Mediterranean, culminating in the dynasty to which Agamemnon belonged. The city was destroyed 468 B.C. Explored by French archaeologists, 1822, Schliemann, 1876, and Wace, 1920-23, innumerable gold and silver ornaments, utensils, weapons and pottery objects have been revealed.

Myelitis Term applied to the inflammation of the spinal cord, but used loosely for various spinal affections. True myelitis may arise from exposure to cold and wet, wounds or injuries to the cord, or from infectious diseases. Paralysis of the limbs is followed by muscular atrophy and high fever, ending in death.

Mynyddislwyn Urban district of Monmouthshire. A colliery centre, it is 5 m. from Newport, and has chemical and tinplate manufactures. Pop. (1931) 16,201.

Myopia Condition of the eye resulting in shortsightedness. Weakness in the accommodating mechanism of the eye causes the visual focal point to be in front of the retina. The range of distinct vision therefore is nearer to the eye and distant objects appear indistinct, a defect remedied by the use of concave lenses.

Myrmidon In ancient Greece a Thesallian tribe who fought in the Trojan war under their leader, Achilles. Their fidelity and devotion to Achilles has made their name a symbolic term for one who gives a blind, unquestioning obedience to a superior.

Myrrh Gum resin, obtained as an exudation from the stem of a tree, *Balsamodendron myrrha*, growing in Arabia and Abyssinia. Myrrh is imported as irregular tears or reddish-brown masses, having an aromatic odour and bitter taste. It is used medicinally as a tonic, and also in mouth washes, gargles and tooth powders.

Myrtle Evergreen shrub of Asiatic origin, long naturalised in the Mediterranean region, and hardy in S.W. England (*Myrtus communis*). Its thick, shining, opposite leaves and fragrant white flowers, largely used in perfumery, yield an aromatic medicinal oil; the berries are used in cookery and turners esteem the hard, mottled wood.

Mysore Native state of S. India. It has an area of 29,475 sq. m., and is situated on the Deccan Plateau, surrounded by British territory. It is ruled by a Hindu maharajah, under British protection. Coffee planting is the principal industry and gold is mined. Pop. 5,806,180. Mysore City is the capital, with a population of 83,932, while Bangalore is another large town.

Mystery Secret rite. Early social and religious institutions, affecting the emotional life of settled agricultural peoples, display widespread observances, perhaps derived from ceremonial dances in Neolithic culture, still traceable in primitive survivals. They comprised the initiation of selected persons by processes of purification and sacrificial offering into a secret formula, and their presence at the revelation or commemoration of a dramatic event. The most renowned mysteries in ancient Greece were held each September at Kleusis, based upon the veneration of the corn-goddess, Demeter, with whom the youthful Dionysus was afterwards associated. In the Graeco-Roman world Orphic, Mithraic, and other mysteries maintained a long rivalry with early Christianity. Mediaeval Christendom developed a type of religious drama or mystery; collections of those performed at York, Coventry, Chester and Towneley survive. See MIRACLE PLAY.

Mysticism Mode of thought or feeling which seeks, in Dean Inge's words, to realise "the immanence of the temporal in the eternal and the eternal in the temporal." Traces of it occur in many diverse religions, notably in theosophical Hinduism, Persian Sufism, and Platonism. It marks some N.T. writings, particularly the Johannine and Pauline. Mediaeval mysticism is represented by such examples as Eckhart and S. Teresa. In Protestant thought Boehme influenced William Law; certain Quaker and Methodist tenets have mystical affinities.

Mythology Term denoting the sacred stories of a people, or their study. Myths are primitive stories, perpetuated by oral tradition, subserving the purposes of religion and morality, and bringing home to the community what must be believed and obeyed. When there is an historic background they rank as legends.

N AAS Market town and urban district of Co. Kildare, Irish Free State. It is 20 m. from Dublin on the G.S. Rlys. Pop. 3440.

Nabob Word used in India in the time of the Mogul Empire for high officials, and later for any person of rank. It had a temporary vogue in England in the 18th century.

Naboth Landowner in Jezreel whose vineyard, adjoining the royal palace, was coveted by Ahab, King of Israel. He was stoned on a false charge arranged by Jezebel (1 Ki. xxi.). See JEZEBEL.

Nadir Term used in astronomy for that part of the heavens directly opposite to the zenith, or point of the heavens vertically above any place on the earth. The zenith and nadir, therefore, form the two poles, superior and inferior respectively, of the horizon.

The term nadir cup or basin is applied to the vessel of mercury attached to a meridian circle used for observing the nadir as the zero point for measuring declinations.

Naevus or Mole. Term applied to certain outgrowths of the skin, usually congenital and, therefore, sometimes called a "mother's mark." One form of naevus is due to an enlargement of the cutaneous blood vessels, and is known as a "port wine mark." Pigmented and hairy naevi may occur on various parts of the body.

Nagasaki Town and seaport of Japan, on the west side of Kyushiu Island. It has a magnificent harbour. For about 300 years it was the only port in Japan open for trade with Europe. The town has some engineering works and other industries, and there is a European quarter. Pop. 189,000.

Nagpur City of India, the capital of the Central Provinces, 450 m. from Bombay. The town has some manufactures. Pop. 145,200.

Nahum One of the Old Testament minor prophets. A native of Elkosh, identified by Jerome in the 4th century A.D. with a Galilean village, but later with a locality near Nineveh where his alleged tomb is shown. His book predicts the fall of Nineveh, which occurred in 606 B.C.

Naiad In ancient Greek legend a female deity. Naiads were nymphs of rivers and springs. See NYMPH.

Nail Horny layer growing on the ends of fingers and toes. A thickening of the epidermis, it corresponds to claws and hoofs in other animals. Lying on a nail-bed of sensitive skin, it forms near the root an opaque *lunula*. It grows continuously throughout life, being worn away or cut at the free end.

Nainsook (Hindu, *ndin*, eye, *sukh*, delight). Thin muslin-like material of fine texture, with a specially soft finish. It is a variety of jaconet, and was originally made in India.

Nairn Burgh and watering place of Nairnshire. It stands on the Moray Firth and a little river of the same name, 15 m. from Inverness. There is a harbour and some fishing. Nairn is the county town. The quarter

inhabited by the fisherfolk is called Fishertown. Pop. (1932) 5282.

Nairnshire County of Scotland. It covers only 162 sq. m., and has a short coastline on the Moray Firth. Nairn is the county town; other places are Auldearn and Cawdor. The rivers are the Findhorn and the Nairn. The land is hilly and unfertile, and the chief industry is the rearing of sheep. Pop. (1931) 8294.

Nairobi Capital of Kenya Colony, East Africa, on the Uganda Rly., 327 m. from Mombasa. It stands on a plateau over 5000 ft. high. The climate is excellent, and many Europeans visit the town as a starting point for expeditions into the colony. It has a broadcasting station (49.5 M.). Pop. 24,000.

Namaqualand District of South Africa. It is divided into two parts, Great and Little Namaqualand, which are separated by the Orange River. Great Namaqualand, part of the South-West Africa protectorate, is a desert region. Little Namaqualand is part of the Cape Province. The name is that of a Hottentot tribe, the Namaqua.

Name That by which a person or thing is denoted. The choice or bestowal of personal names is governed by social usage, and in primitive culture is often attended by measures designed to counteract their malevolent misuse. Nowadays one or more Christian or given names and a surname, usually the father's, are usual in Britain and elsewhere in Christendom. Under English law a woman on marriage takes her husband's surname; in Scotland, for all legal purposes, she usually retains her maiden name. Members of the British royal family sign their baptismal names only, peers of the United Kingdom only their surnames or peerage designations. See PLACE-NAME, SURNAME.

Namur City of Belgium, standing where the Sambre falls into the Meuse, 35 m. from Brussels. A bridge across the Meuse leads to the suburb of Jambes. There are some manufactures. Pop. 30,360.

Owing to its position Namur has long been a fortified place. In 1692 it was taken by the French and in 1695 by the English, after a long siege. It was fortified by the Belgians in the 19th century, and was regarded as almost impregnable. In 1914, however, the forts were quickly reduced by the Germans, who entered the town on August 25th.

Nanaimo Seaport and town of British Columbia, on the island of Vancouver, 73 m. from Victoria. It is a fishing centre, but is more important for its shipping. There is a good harbour.

Nancy Town in N.E. France, the capital of the Meurthe-et-Moselle department, which has a population of 113,228, and was formerly the capital of Lorraine. The older quarter of the town is picturesque, the modern city has buildings and open streets. It is an important railway junction, and manufactures lace goods. During the World War, in August, 1914, its suburbs were invaded.

Nankeen Strong cotton fabric, originally made in China from native cotton of a yellowish drab tint. Nankeen, or

cotton twill, is now manufactured in other countries from ordinary cotton and dyed to the requisite shade.

Nanking City and river port of China. It is on the Yang-tse-Kiang, about 200 m. from the mouth. The industries include shipping and various manufactures. Nanking was at one time the capital of China, and in 1928, with the setting up of a national government, it replaced Peking as the nation's metropolis. Near is an avenue of gigantic statues, leading to the tombs of the Ming dynasty. Pop. 360,000.

Nansen Fridtjof, Norwegian explorer. Born Oct. 10, 1861, after an arctic voyage in 1882, and the first crossing of Greenland in 1888, he attempted, unsuccessfully, in 1893 to reach the North Pole by letting his ship freeze in the ice and drift with a current setting towards Greenland. He wintered away from his ship, the *Fram*, at a latitude of 86° 14' North, only returning to civilisation in 1896. He was a professor of zoology at Christiania University, and a strong nationalist. He was Norwegian ambassador at London in 1906-08, when he returned to academic life, making several oceanographic expeditions. His relief work in the post-war famine in Russia and other work as high commissioner for refugees to the League of Nations earned him a Nobel Peace Prize in 1923. He was instrumental in securing the entry of Germany into the League. He wrote, among other books, *Ekimmo Life, In Northern Mists and Russia and the Peace*. He was elected Lord Rector of St. Andrews in 1925. He died May 13, 1930.

Nantes Town in Western France. The capital of the department of Loire Inférieure, on the river Loire, it stands where the river divides into several branches, and has a population of 166,507.

It has played a prominent part in Breton history from the time of its commercial expansion under the Romans, and rivalled Rennes for the sovereignty of Brittany. Though, in feeling, it has always been anti-Protestant, it was here that the Edict of Nantes was signed, in 1598, giving religious freedom to the Huguenots.

Nantes possesses a large and important port on the Loire, as well as a great maritime port, both accessible to big ships. It exports slate and machinery, pit-props and soaps, and imports coal, petroleum, sugar and grain.

Nantucket Island of Massachusetts. Its area is 43 sq. m., and the town of Nantucket is at the north end of the island. The light from Nantucket lighthouse is familiar to travellers approaching New York. The island was long the home port of the great whale fisheries.

Nantwich Market town and urban district of Cheshire. It stands on the Weaver, 161 m. from London and 4 m. from Crewe. At one time Nantwich was a centre of the salt industry, but this no longer flourishes. There are brine baths. Clothing and shoes are made. Pop. (1932) 7132.

Nantyglo Market town of Monmouthshire, part of the urban district of Nantyglo and Blaena, 162 m. from London, on the G.W. Rly. The chief occupations are in the coal mines and ironworks. Pop. (1931) 13,190.

Naomi Old Testament character portrayed in the Book of Ruth. With her husband Elimelech and their two sons, she went from Bethlehem-Judah to Moab

in time of famine. Returning a childless widow, accompanied by her Moabitish daughter-in-law, Ruth (q.v.), she reached Bethlehem, exclaiming to old friends "Call me not Naomi (pleasant), call me Mara (bitter)."

Nap (or Napoleon). Game of cards, of French origin. To each player, usually three to five, five cards are dealt from a full pack. Each plays for himself. The player calling the highest number of tricks proposed to be won leads, a declaration of five tricks being called "going nap." The trump suit is that of the declarer's first card played. On making his declaration, the player is paid by each of his opponents; should he fail to make it, he must pay each of them the amount of his stake. If the player declaring Nap succeeds, he usually receives double stakes.

Naphtali Israelitish tribe named after Jacob's younger son by Bilhah. Their territory lay in the mountainous district of upper Galilee.

Naphtha Term applied to derivatives either of petroleum, coal tar, or wood. Petroleum naphtha, a product of the distillation of petroleum, has a specific gravity about 0.700 and is used as a solvent and cleaning material. Coal tar naphtha or "light oil" is the first product of coal tar distillation, and when refined is used under the name of solvent naphtha for dissolving rubber. Wood naphtha is a form of methyl alcohol (q.v.).

Naphthalene Solid white hydrocarbon which crystallises out from the "middle oils" formed in the distillation of coal tar. It occurs as glittering plates having a peculiar tarry odour, and is soluble in hot alcohol and also benzene. Naphthalene is used as an antiseptic, for enriching water-gas and coal-gas, and it forms the basic substance for a large number of important intermediate dyestuffs by nitration and sulphonation, the most important being α -Naphthol, β -Naphthol and phthalic acid.

Naphthol Alpha and Beta. Solid hydrocarbon derivatives of naphthalene, used as basic substances in the preparation of a large number of aniline dyestuffs. Alpha naphthol is employed in making Martius's yellow for silks and wool, as well as brown dyes for soaps and spirit varnishes. Beta naphthol is of still greater importance in the manufacture of intermediates and dyestuffs.

Napier Town and seaport of North Island, New Zealand. Standing on Hawke's Bay, 200 m. from Wellington, there is a good harbour from which wool and meat are exported. Napier was seriously damaged by earthquake in 1931. Pop. 19,200.

Napier John. Scottish mathematician. Born at Edinburgh in 1550, in 1593 he published his *Plain Discovery of the whole Revelation of Saint John*. He devised warlike machines for use against Philip of Spain, and recommended salt as a fertiliser of the land. He described his famous invention of logarithms in *Mirifici Logarithmorum Canonis Descriptio* (1614), and the calculating apparatus called *Napier's Bones* in another Latin work in 1617. He died April 4, 1617.

Napier Celebrated Scottish family. Sir Charles Napier, British admiral, was born March 6, 1786, near Falkirk. He took part in the capture of the West Indies, 1806-08. After commanding the Portuguese fleet, and winning the title Count Cape St. Vincent, he stormed Sidon in the Syrian War of 1840, and

NAPIER

in 1854 was commander-in-chief in the Baltic against Russia. He was M.P. for Marylebone 1842-46, and for Southwark, 1855-60. He died Nov. 6, 1860.

His uncle, Sir Charles James Napier, British general and statesman, was born in London, Aug. 10, 1782. He served in the Irish rebellion of 1798, in Denmark, and at Corunna. He took part in the Chesapeake expedition, and became Governor of Cephalonia in 1822. In 1841 Napier went to India and subdued the rulers of Sind by his victory of Meeanee. He died Aug. 29, 1853.

His brother, Sir William Francis Patrick Napier, British soldier and military historian, was born near Dublin, Dec. 17, 1785. He fought in Denmark in 1807 and the Peninsula 1808. He wrote *History of the War of the Pyrenees*, (6 vols., 1828-40), and *History of the Conquest of Sicily* (1845), among other books. He died Feb. 12, 1860.

Napier of Magdala. Robert Cornelius Napier, 1st Baron. British field-marshal. Born at Colombo, Ceylon, Dec. 6, 1810, he distinguished himself in the two Sikh wars, was present at the relief of Lucknow, and later defeated Tantia Topi on the plains of Jaura Alpur in 1858. He served for a time in China, taking part in the entry into Peking, and in 1868 he commanded the Abyssinian expedition, and was given a peerage as a reward for his brilliant storming of Magdala. He was afterwards successively Chief of the Forces in India, Governor of Gibraltar, and Constable of the Tower. He was made Field-marshal in 1883, and died Jan. 14, 1890.

Naples City and seaport of Italy. It is beautifully situated on the Bay of Naples, 135 m. from Rome, and has a fine anchorage. On the north-east shore of the bay are the sites of Herculaneum and Pompeii, overshadowed by Vesuvius (q.v.), and near are the Bay of Baiae, the Lucrine Lake and Lake Avernus. The islands of Ischia and Capri (q.v.) lie off the coast.

Built on volcanic slopes, Naples has many well-known streets and buildings, the former including the Toledo and the Corso Vittorio Emanuele, and the latter the Museo Nazionale containing the Farnese and other art treasures, the castle of S. Elmo (1537-46), the Castle Nuovo (1279-82), the royal palace, National Library, the cathedral of S. Januarius (1294-1323), and over 230 churches. The new university buildings date from 1906.

The industries include silk, cotton, jute and wool manufactures, railway plant and automobile making, shipbuilding, etc. After the cholera epidemic of 1884 extensive slum-clearance was carried out, and the city was largely reconstructed. It has a broadcasting station (319 M., 1.5 kW.). Pop. (1931), 983,000.

Founded by the Greeks, Naples remained Greek in culture under the Romans, suffered during the Gothic wars, and finally became independent in the 8th century. It remained independent till the 12th century, when it became the seat of the kingdom of Naples.

The Kingdom of Naples existed from the 12th to the mid-19th century, and was ruled in turn by the Hohenstaufens, the Angevins, and the kings of Aragon and Spain, until it passed to Austria under Charles VI. in 1713. After Garibaldi's liberation of Italy, it became part of the Sardinian kingdom (1860).

Napoleon Eugene Louis Jean Joseph. French prince, usually called

917 .

NAPOLEON III.

the Prince Imperial. Born March 16, 1856, he was the only son of Napoleon III. and the Empress Eugénie, and left France with his parents in 1870. He was trained as a soldier, and went out with the British army to Zululand, where he was killed, June 1, 1879.

Napoleon French gold coin, first issued by Napoleon. It consisted of 20 francs, and was worth about 16s.

Napoleon I. Bonaparte. Emperor of the French. Born at Ajaccio in Corsica, Aug. 15, 1769, and educated at military schools in Brienne and Paris, he soon rose to fame as an artillery officer of the new French Republic and in 1798 was in command of the French army in Italy. A series of spectacular victories made him the idol of France. After a brief campaign in Egypt he returned, and by the *coup d'état* of 18 Brumaire (9th Nov. 1799), made himself First Consul under a new constitution which gave him autocratic power.

His ambition now knew no limits, and he contrived to make himself Consul for life in 1802 after another successful Italian campaign. In 1804 he became Emperor as Napoleon I. Then followed a period of despotic government at home, with an almost constant succession of campaigns abroad.

He destroyed Prussian opposition at the battles of Jena and Austerlitz threatened England with invasion from Boulogne and defeated the Russians at Eylau and Friedland; but his ambition then led him into adventures which brought about his downfall, beginning with the unsatisfactory campaign in Spain, and later the disastrous march into Russia and the retreat from Moscow (1812). The end came with the battle of Leipzig (the "Battle of the Nations") and the invasion of France by the allies, which resulted in the abdication of Napoleon (1814) and his exile to Elba.

On Feb. 26, 1815, he made one desperate effort, returned to France, and was decisively beaten at Waterloo on June 15, 1815. Surrendering to the British, he was exiled to St. Helena, where he died May 5, 1821.

He was married first to Josephine Tascher de la Pagerie, whom he divorced in 1809 in favour of Marie Louise of Austria.

"The greatest adventurer in the world," his genius showed itself not only on the battlefield, but in his detailed reorganisation of France, much of which still remains.

Napoleon III. Charles Louis Napoleon of the French, nephew of Napoleon I. Born April 20, 1808, the son of Louis Bonaparte, King of Holland, he made two unsuccessful attempts to displace Louis Philippe and the Bourbons, and restore the Napoleonic dynasty (1836 and 1840). After the Revolution of 1848, he accepted the Republic and was elected President. In 1851, by a *coup d'état*, he dissolved the Constitution, and in the following year became Emperor. He carried out a policy of administrative centralisation and remodelled Paris.

His foreign policy was unsuccessful. Though he gained glory for France by his participation in the Crimean War, his support of the disastrous attempt to make Maximilian of Habsburg Emperor of Mexico and his intervention in Italy on behalf of unification alienated various sections of French opinion. The Franco-Prussian War, into which he was drawn by Bismarck, resulted in the total defeat of the French and the collapse of the Second

Empire. The Emperor sought refuge in England, where he died Jan. 9, 1873.

Napoleonite Alternative name for ball-diorite, an igneous rock found in Corsica and composed of an aggregate of spherical masses of radially and concentrically arranged felspar and hornblende.

Narcissus Genus of bulbous herbs of the amaryllis order, natives of central Europe and the Mediterranean region; one species extends eastward to Japan. The special feature of the tubular perianth is the cup springing from the base of the flower-segments. Various species have furnished hundreds of cultivated and hybridised forms, sometimes double-flowered, often fragrant, including polyanthus or bunch-flowered and pheasant's-eye types. These present innumerable variations of size, and white or yellow colouring, sometimes with a scarlet-edged or frilled corona (q.v.). See **DAFFODIL**, **JONQUIL**.

Narcissus In Greek mythology, a beautiful youth, son of the river-god, Cephissus, beloved by the nymph Echo. He ignored her passion so that she pined away in grief, while he, seeing his own reflection in a fountain, became so enamoured of it that he too pined away, changing into the flower bearing his name.

Narcotics Name applied to drugs such as opium, chloral, cocaine, etc., which have a sedative effect upon the nervous system and are therefore of value in relieving pain.

Nares Owen Ramsay, English actor. Born Aug. 11, 1888, he trained with Miss Rosina Philpote, and first appeared in *Her Father*, at the Haymarket Theatre, in 1909. After touring provincially for two years, he played in London for eleven. In 1926 he toured in S. Africa. His best known parts have been Julian Beauclerk in *Diplomacy*, Philip in *The Boy Comes Home*, Peter Beavans in *The Charm School*, Mark Sabre in *If Winter Comes*, Cary Liston in *Two White Arms*, and Garry Anson in *The Calendar*.

Nares Sir George Strong, English explorer. Born in 1831, he entered the navy in 1846, and as mate of the *Resolute*, sailed on the Arctic Expedition of 1852. After service in the Crimea he was in command of the *Challenger*, in her world voyage of deep-sea exploration. He commanded the Arctic Expedition in the *Discovery* and the *Alerik* in 1875, and in 1876 surveyed the Magellan Strait. He was promoted Vice-Admiral in 1892, and died Jan. 15, 1915.

Narwhal Scandinavian name of a cetacean of the dolphin family, inhabiting the Arctic regions (*Monodon monoceros*). It is also called sea-unicorn. The male possesses a tapering tusk, spirally grooved, sometimes as much as 8 ft. long. This projects horizontally forwards, usually from the left upper jaw; the corresponding right tooth sometimes develops also. It is of compact ivory, with a central cavity. In colour it is black-grey above, white beneath, and frequents polar seas, usually in schools of 15-20.

Naseby Village of Northamptonshire. It is 7 m. from Market Harborough, and is famous for the battle fought here on June 14, 1645. Charles I., with an army, was marching towards Leicester pursued by his enemies. He waited for them at Naseby, and won an initial success. Cromwell's men, however, turned the scale, and in the end the

Royalists were routed. Charles escaped to Leicester, but his private papers were captured, as well as a large number of his men. An obelisk marks the site of the encounter.

Nash Paul, British painter. Born in London, May 11, 1889, he was educated at S. Paul's School and the Slade School. He held his first exhibition in 1911, but it was not until 1918, when his work as an official war artist (1917-18) was shown, that he attracted attention. He developed charm and individuality as a landscape painter, and held an important exhibition in London in 1924. He also produced woodcuts, and book illustrations, of which the series of wood-engravings, "Genesis" (1924), are the most important.

Nash Richard, English dandy, known as Beau Nash. Born at Swansea, Oct. 18, 1674, he entered the army; and in 1693 the Middle Temple, but forsook the law for society. He made a precarious living by gambling, but in 1704 was made master of ceremonies at Bath. He conducted the public balls with a sumptuous splendour, and gained great prestige. He died in poverty at Bath, Feb. 3, 1763.

Nash Thomas, English dramatist and satirist. Nash, who was called by Lowell "The English Rabelais," was born in 1567. He wrote amongst other works, *Pierces Penniless*, *His Supplication to the Devil* (1592), full of keen satire and mainly autobiographical. Other works were *The Terrors of the Night*, *The Unfortunate Traveller* and *The Isle of Dogs*, which was at once suppressed and is now lost. He completed Marlowe's unfinished tragedy, *Dido*. He died in 1601.

Nashville City and capital of Tennessee, on the Cumberland River, 185 m. from Louisville. In Centennial Park is a replica of the Parthenon at Athens. It has a great trade in cotton, lumber, and tobacco, while there are also printing works and textile mills. Pop. 163,900.

Near Nashville, on Dec. 15-16, 1864, there was a great battle during the American Civil War. The Confederates, or Southerners, were utterly defeated by the Federals in possession.

Nasmyth James, Scottish engineer. Born at Edinburgh, Aug. 19, 1808, he started business in Manchester in 1834, and was soon head of the Bridgewater foundry at Patricroft, from which he retired with a fortune in 1856. He invented the steam-hammer in 1839, to forge large paddle-wheel shafts for steamships, also many other appliances, among them a planing machine (*The Nasmyth Steam Arm*). He died May 7, 1890.

Nasturtium (1) Genus of British and N. temperate cruciferous herbs, called watercress (q.v.). (2) Popular name for a genus of S. American herbs of the geranium order, *Tropaeolum*.

Natal Province of the Union of South Africa. It lies between the Indian Ocean and the Drakenberg Mts., N.E. of Cape Province, and has an area (including Zululand) of 35,284 sq. m. Pietermaritzburg is the capital, and Durban the principal port. The province is rich in minerals, of which the most important are coal and iron. Gold is also found, and marble is quarried. There is considerable trade in timber, while coffee and sugar are grown, and cattle and horses reared. The name was given to it because it was discovered on Christmas Day, 1497, by Vasco da Gama. The white population (1931) was 177,324, and there are about 1,300,000 blacks.

Nathanael One of Jesus Christ's first disciples. Belonging to Cana of Galilee, he was introduced to our Lord by Philip (John i.). He is variously identified with Bartholomew and others.

National Anthem Term used for the official song of a nation. *God save the King*, the British national anthem, is attributed to Henry Carey and also to John Bull, but its exact authorship is doubtful. Among other national anthems are the French, *La Marseillaise*, the Belgian, *La Brabançonne*, and the Canadian, *The Maple Leaf for ever*. The U.S.A., though without an official national anthem, have *Hail Columbia*, and *The Star Spangled Banner*, for popular use.

National Debt Phrase used for money owing by a state in its collective capacity. Most of it consists of money borrowed to carry on war. Almost every country in the world has a national debt, and during the financial crises of 1831-32 several found it impossible to meet the interest payments thereon. The Dominions of the British Empire have each a national debt.

In Great Britain the national debt, as distinct from the liabilities of the king, originated in the time of William III. The amount was greatly increased during the 18th century, and in 1785 it amounted to £244,000,000. A good deal was borrowed to finance the war against France, and in 1816 it had reached £858,000,000.

During the rest of the 19th century, except for the short period of the Crimean War, the debt was steadily reduced in amount until in 1899 the total was only £635,000,000. The South African War, however, added another £150,000,000, and in 1914 the total was £706,000,000. The Great War increased enormously the amount of the debt, and in 1920 it amounted to nearly £8,000,000,000, much of which had been borrowed at 5 per cent. interest. Attempts were made to reduce the total, but on the whole they were not very successful and in March, 1931, the total amount owing was £7,583,000,000.

This debt is divided into external and internal. The external debt amounts to £1,066,660,000, chiefly owing to the United States. The internal debt is divided into funded and unfunded debt. The funded debt consists chiefly of consols and a 3½ per cent. conversion loan, and amounts to £1,425,000,000. The bulk of the debt is therefore unfunded. It includes the 3½ per cent. war loan of £2,087,000,000, the 4½ per cent. conversion loan, victory bonds, savings certificates, treasury bonds and treasury bills. The 3½ per cent. war loan was a 5 per cent. loan until 1932, when a successful conversion scheme was carried out. Of the total amount about £500,000,000 is held by the Post Office Savings Bank on account of depositors, and about £750,000,000 by departments of state.

On the other hand there are assets which may be set off against the enormous total of the national debt. Nominally these are worth £2,457,600,000, nearly half consisting of debt owing by Russia. The remainder is owed by the Dominions and foreign countries, and there are certain other assets such as the shares in the Suez Canal and the Anglo-Persian Oil Co.

The interest on the national debt costs about £392,000,000 a year, and the cost of managing it comes to £1,300,000. To meet these payments, and also to reduce the amount, an annual sum of £360,000,000 is set aside, so

that there is about £66,000,000 for repayment, this sum being known as the sinking fund. There is also a national debt redemption fund, which receives donations and legacies for the same purpose.

National Gallery Any collection of pictures belonging to the state, but particularly the one in Trafalgar Square, London. This dates from 1824, and the building from 1838; the latter has been enlarged several times. It contains a wonderful collection of paintings, nearly all the great masters being represented. It is under trustees and a director, and is open free, except on Thursday and Friday, when a small charge is made.

Connected with it is the National Gallery at Millbank, founded by Sir Henry Tate and usually called the Tate Gallery (see TATE, SIR HENRY). It was opened in 1897 and is chiefly used for British pictures, although it has a foreign gallery. It contains a fine collection of the works of Turner, and a special gallery for those of Sargent presented by Sir Joseph Duveen.

The National Portrait Gallery adjoins the National Gallery in Trafalgar Square. It was opened in 1896 and has since been enlarged. There is a National Gallery of Scotland at the Mound, Edinburgh, and a Scottish National Portrait Gallery in Queen Street, Edinburgh. Other great national galleries are the Prado in Madrid and the Louvre in Paris.

Nationalisation Acquisition by the state of land or any other public utility, usually by purchase. In Canada and elsewhere some or all of the railways have been nationalised. The nationalisation of the land has been proposed in Great Britain, and a society exists to forward the idea, while the nationalisation of the coal mines and the railways has also been suggested. Nationalisation has been carried to extreme lengths in Russia under the Soviet, but in other countries it has been confined to public utilities, such as telegraphs and telephones.

National Mark In Great Britain a mark placed on certain articles of food to show that such are produced at home. The scheme was introduced in 1928 and is used for beef, flour, eggs, apples and other articles of food. See GRADING.

National Trust Society for preserving places of historic interest and natural beauty. It dates from 1895, and now holds a great deal of land and a number of buildings all over the country, some having been given to it and some purchased by subscription. The property held by the trust includes a large area of Exmoor, Minchinhampton Common and several castles. The acquisitions in 1931 include Frankley Beeches, near Birmingham, Haresfield Beacon, Longshaw Moor, near Sheffield, and land in the New Forest. The offices are at 7 Buckingham Palace Road, London, S.W.1.

Nativity Name of several Christian festivals. For Christ's Nativity, commemorated on Dec. 25, see CHRISTMAS. The Nativity of the Virgin Mary on Sept. 8, established in Rome in the 7th century, was adopted by the Eastern Church in the 12th. The Nativity of John the Baptist, on June 24, dates from the 5th century.

Our Lord's birth has been commemorated in art throughout the ages; nativity plays occurred in early mediæval drama.

Natrolite Fibrous mineral belonging to the zeolite group and found in

basalts, usually in cavities, as beautiful tufts of white, transparent acicular crystals, or in more massive form and as slender prisms. It is a hydrated silicate of alumina and soda, and is so fusible, as to be melted in a candle flame.

Natron Natural form of sodium carbonate, occurring usually in white or greyish efflorescent incrustations near certain lakes in Egypt, in Kenya Colony (Lake Magadi), and in British Columbia, having crystallised out from a concentrated brine. In some instances the carbonate is mixed with the bicarbonate, as in the *trona* of certain Californian lakes.

Natterjack Toad indigenous to W. Europe (*Bufo calamita*). Found in parts of England, Scotland and Ireland, it is smaller than the common toad, with shortened hind limbs, short and nearly webbed toes, and a yellow line along the back. The male has a vocal throat sac which, when distended, is larger than the head.

Natural Gas Name given to various gaseous hydrocarbons occurring in rocks of varied geological age in Canada, the United States and elsewhere, due to the natural destructive distillation of carbonaceous rocks. Accumulations of the gas are, in America, tapped by deep borings and collected for purposes of illumination and heating. Carbon black, used extensively in the manufacture of printing ink, paints, gramophone records, etc., also is obtained by the incomplete combustion of natural gas in special furnaces.

Natural History Term once used for the study of nature generally, but later confined to zoology. The **Natural History Museum**, opened in 1881, is in Cromwell Road, South Kensington, London, S.W.7., and is a branch of the British Museum. It contains botanical, geological, mineralogical, zoological and other collections.

Nature Word of manifold senses derived from its original meaning of birth or origin. It may denote the metaphysical principle of life, or the forces and processes of the material world, often personified, and regarded as the agency through which the Creator works. Again, it may denote the essential constitution or quality of a being or thing, its original uncultivated condition, or its innate character or disposition.

Nature-study is a modern educational method of bringing children into sympathetic contact with common natural objects. By stimulating the powers of observation it forms an invaluable foundation of scientific knowledge.

Nature-worship. Ritual expression of reverence for physical phenomena deemed capable of affecting human life. In some stages of primitive culture these phenomena—rivers, mountains, animals, plants, storm, thunder, moon and sun, etc.—are variously deemed to be animated by powers akin to man's, or to be the abode of supernatural beings amenable to control by spell, or to propitiation by prayer.

Naucratis Ancient Greek settlement in Lower Egypt. Midway between Cairo and Alexandria, it monopolised Greek trade in Egypt from Aahmes II. to the Persian invasion, 570-520 B.C. Petrie's (1885-6) and later excavations revealed much local and imported pottery and the remains of fort-sanctuaries.

Nausicaa In Greek fable, daughter of Alcinous, King of the Phae-

acians, whose court was on the Island of Scheria (perhaps Corfu). Homer describes how the shipwrecked Ulysses found her on the shore playing ball with her maidens, and was led by her to the king, to whom he related his adventures.

Nautch Girl Indian professional ballet dancer. Many are attached to Hindu temples, performing sacred dances in bejewelled dresses before the gods, although private secular dances alone are strictly called nautches. Moslem nautch-girls engage solely in secular dances, as on the festival evening terminating the Ramadan fast.

Nautilus Genus of cephalopods or head-footed molluscs, which produced in remote geological ages ammonites and other remarkable fossil forms. The spiral shell is divided by thin walls or septa into a series of chambers, of which only the outermost is occupied. Of the three or four species, confined to Indo-Pacific waters, the best-known is the pearly nautilus. The female of the two-gilled argonaut, making a temporary shell-cradle, was formerly called the paper nautilus. See CEPHALOPODA.

Naval Cadet Youth undergoing training for a commission in the Royal Navy. Cadets pass into the Royal Naval College, Dartmouth, when in their fourteenth year. After 3 years' training, if satisfactory, they are appointed to ships where, if still satisfactory, they become midshipmen (q.v.). A limited number of cadets may enter the College at the age of 17, direct from public schools, being transferred to ships after one year's training.

Naval Reserve Royal. Unit of the British Navy. Formed in 1853, it consists of officers and men enrolled from the mercantile marine and fishing fleets, and called up to serve with the navy in times of national emergency. The **Royal Naval Volunteer Reserve**, formed in 1902, affords facilities for using the services of yachtmen and others not connected with organised maritime work at similar times. The **Royal Fleet Reserve** consists of those who have already served in the navy.

Navan Market town and urban district of Co. Meath, Irish Free State, 30 m. from Dublin, on the G.S. Rlys. Here the Blackwater falls into the Boyne. The town is an agricultural centre. Pop. (1926) 3650.

Navarino Seaport of Greece, now called Pylos. Here, on Oct. 20, 1827, a combined British and French fleet so decisively destroyed the ships supporting an army that the Turks had landed, that the battle ended the attempt of Turkey to prevent Greece from securing her freedom.

Navarre Formerly a kingdom between France and Spain, in the west of both countries with a coastline on the Bay of Biscay. It arose in the 11th century and, after 1284, was ruled by the kings of France, who secured it by the marriage of Philip IV. with its heiress. In 1316 the two were again separated, and Navarre had a queen, the daughter of Louis X. After being connected with Aragon, Navarre came to another queen, Catherine de Foix, the grandmother of that Henry who became King of Navarre and later, in 1589, King of France as Henry IV. This once more united Navarre with France, except for a portion which had previously been included in Spain.

Navarro Ramon. Film actor. Born at Durango, Mexico, in 1900, he received a thorough education in violin-playing, dancing and opera-singing, and is noted for his handsome face and pleasant voice.

Nave Architectural term for the central and largest part of a church. The nave in many cathedral and monastic churches included the choir at the east end, though in later buildings the choir was cut off by a screen from the nave. The clerestory, or upper part of the wall of the nave, was pierced with windows.

Navigation Term applied to the art of sailing or directing a ship on its course from one port to another. For this purpose charts for determining the course, and plotting the position of the vessel at any given point, are necessary, as well as the mariner's compass for taking bearings.

From the time of Cromwell onwards a number of laws known as the Navigation Acts were made for the regulation of shipping and the fostering of British trade. These acts increased the prices of imported goods and led to the early wars with the Dutch, and were repealed in 1849.

Navy Ships and personnel of a nation, used for purposes of war. Early navies were built less for war than for commerce, though fighting craft were specially designed by the Phoenicians, Athenians, Carthaginians, Romans, Norsemen and others. The first English navy was built by Alfred the Great to fight the Danes, while the Normans requisitioned ships from coastal towns and counties. Later the navy was maintained entirely by the state. Under Henry VIII. and the Stuarts the navy was greatly improved, but received little further impetus till the time of Nelson (q.v.).

Marked improvements are comparatively modern—the introduction of iron, first as a protection and, about 1860, for constructional purposes and later replaced by steel, and the introduction of steam propulsion. The development of the water-tube boiler, oil fuel, turbine, electric and hydraulic power have revolutionised shipbuilding, of which full advantage has been taken in the navy. The introduction of submarines and aircraft added considerably to the range of naval activities, while refrigeration, wireless, range-finders and many other scientific devices have helped to maintain efficiency and to improve conditions on the ships.

THE NAVY AS A CAREER. The commissioned ranks in the Royal Navy and Royal Marines may be divided as follows:

(1) Executive and Engineer Officers in R.N.—Entry is through R.N. College, Dartmouth, at the approximate age of 13½, or through H.M.S. *Erebus* between ages of 17½ and 18½. The period spent at Dartmouth is approximately four years and one year in H.M.S. *Erebus*. Fees at Dartmouth are £150 a year, with reduced rates of £40, £70, and £100 a year in selected cases. No fees are payable for training in H.M.S. *Erebus*.

Pay ranges from about £90 a year as Midshipman to about £1100 a year as Captain or Engineer Captain, plus allowances. Higher rates are paid to officers on the Flag List.

(2) Accountant Officers in the R.N. Entry as Paymaster Cadets between the ages of 17 and 18. Pay ranges from about £90 a year as Paymaster Midshipman to about £1400 a year as Paymaster Rear-Admiral, plus allowances.

(3) Commissioned Officers in the R.M. Entry between the ages of 18 and 19. Pay ranges

from about £135 a year as Probationary Second Lieutenant to £1100 as Colonel, plus allowances. Higher rates are paid to Officers on the General List.

Candidates entered under these systems must satisfy an Interview Committee and pass the prescribed educational and medical examinations. Full particulars as to entry may be obtained from the Secretary, the Admiralty, Whitehall, London, S.W.1.

The R.N. or R.M. offers an attractive life to an active man, good pay and conditions, and a pension on retirement.

Navy Board Organisation formerly existing to manage the English navy. It was set up in the time of Henry VIII. and remained in existence until 1832 when it was abolished. It was one of several departments responsible for managing the navy. Samuel Pepys was its secretary. At that time the office was in Seething Lane, London, E.C.

Naxos Island of Greece. Covering 175 sq. m., it is the largest of the Cyclades. Naxos, a seaport on the west coast, is the capital. Vines grow freely, although the land is mountainous, and the island is also famous for its marble. In ancient times it was a centre for the worship of Bacchus. Pop. 15,000.

Nazareth Town of Palestine, situated in a hollow of the hills bordering the plain of Esdraelon, midway between the Mediterranean and the Sea of Galilee. Its association with Christ's early life made it a place of pilgrimage from early times.

Nazarites (or Nazirites). Name meaning "separated" and denoting certain Jews under a personal vow. This included abstinence from wine and strong drink, from cutting of the hair and from contact with the dead. It might be temporary, for a month or more, or lifelong, e.g., Samson and John the Baptist. Regulations are prescribed in Numbers vi.

Naze The Cape of England. It is in Essex, 5 m. from Harwich and is a prominent landmark.

Neagh Lake or lough of Ireland. The largest lake in the British Islands, it covers 153 sq. m. It lies between the counties of Armagh, Londonderry, Down, Tyrone and Antrim, and is noted for its fish.

Neanderthal Man Extinct palaeolithic race.

With heavy brow-ridges and receding forehead, they inhabited Pleistocene Europe during the Mousterian culture-period. Fossilised remains were found in the Neanderthal ravine near Düsseldorf, 1856. Similar remains have come from Belgium, France, Jersey, Malta, Galilee and Gibraltar. The race is generally considered to be unrelated ancestrally to modern or Aurignacian man.

Neasden District of Middlesex, forming part of the urban district of Kingsbury, 5 m. from London, to the N.W. of the city. See KINGSBURY.

Neath Borough, market town and river port of Glamorganshire. It stands on the River Neath, 183 m. from London, by the G.W. Rly. The chief industry is smelting and there are tinplate and chemical works. Pop. (1931) 32,322.

Neat's Foot Oil Oil prepared by boiling the feet of oxen, sheep and horses, and used as a lubricant for delicate machinery and in the dressing of leather.

Nebraska State of the United States. In the centre of the country, it is an agricultural area, producing great quantities of maize, wheat, oats and fruit. Its area is 77,800 sq. m. Lincoln is the capital, but there are no very populous cities. It is governed by a legislature of two houses and sends two senators and six representatives to Congress. Pop. (1930) 1,377,983.

Nebuchadnezzar (or Nebuchadnez-zar). Name of three Babylonian kings. Nebuchadnezzar II., Nabopolassar's son reigned 604-561 B.C., having as crown-prince defeated Pharaoh Necho at Carchemish. He took Jerusalem, carrying many Jews into captivity, 586 B.C., besides capturing Tyre after 12 years' siege, and invading Egypt. He carried out much temple and civil building at Babylon, Ur and elsewhere.

Nebula Astronomical term for cloudy or misty patches in the heavens which are unresolved by powerful telescopes into stars or star-clusters. Many of the so-called nebulae of early observers have been shown by the aid of photography to be globular clusters of stars, but others are found to be composed of gases of very feeble density. Nebulae may be divided into two classes, regular and irregular, the former consisting of luminous and dark nebulae, the latter of planetary, spiral, and the globular and spindle nebulae. One of the best known examples is the Great Nebula in the constellation of Orion.

Nebulium Provisional name formerly given to a hypothetical substance supposed to exist in nebulae, and to be the cause of the greenish appearance they show when seen through a telescope, and of the presence of two bright lines in the green part of the spectrum. Recently, however, nebulium has been shown to be only ionised oxygen and nitrogen.

Neck That portion of an animal's body joining the head to the trunk and having in all mammals, with few exceptions, seven cervical vertebrae, whether the neck is long or short. The muscular covering consists chiefly of the sternomastoid and trapezius muscles. The carotid arteries and jugular veins are the chief blood vessels in this region, and internally there is placed the oesophagus, trachea, larynx and the thyroid glands, the latter situated in the lower part of the neck.

Necker Jacques. French financier. Born at Geneva, Sept. 30, 1732, he became a banker in Paris. In 1777 he was made a director general of finance, but this was too late for him to save the country from bankruptcy. He published the famous *Compte Rendu* (Account Rendered) in 1781, and left office the same year. In 1788, after a period of exile, he was recalled, and on his advice the states general was brought together. Necker was again director general in 1790. He died in Switzerland, April 9, 1804.

Necromancy Divination by pretended conversation with a departed spirit. A professional sorcerer usually summons the spirit of the would-be consultant's behalf, as the witch of Endor did the spirit of Samuel for Saul (1 Sam. xxviii.). Circe, in Homer's *Odyssey*, sent Ulysses to Hades to consult the dead seer Thresias. Mediaeval Europe corrupted the word to nigromancy, as if denoting "the black art," or sorcery in general. Necromancy still occurs in primitive cultures, including negro and Bantu Africa and Melanesia.

Necropolis Greek word, "city of the dead," anciently designating an extensive cemetery in the suburbs of Alexandria, and now commonly used for any large burial ground found near an important centre of early civilisation. It also occasionally denotes a modern cemetery in actual use, e.g., the London Necropolis at Brookwood, near Woking.

Necrosis Term applied usually to the death of bony tissue. It is also used for the death of a circumscribed portion of any tissue, and is due to lack of nutrition of the part.

Nectar Term used by the Greeks for the drink of the gods. Supposed to give life and beauty, it was forbidden to mortals, as to drink it conferred immortality. The honey of flowers is poetically called nectar.

Nectarine Smooth-skinned variety of the peach (*g.v.*). The skin of the ripe fruit is shinier, tenderer, and generally more crimson-tinted; the flesh is firmer. The method of culture is identical. No essential difference between the two exists; they sometimes grow side by side on the same tree, and peach-seeds will produce nectarines.

Needles Three rocks off the west coast of the Isle of Wight. On the outermost stands a lighthouse. They were part of the island until the intervening land was washed away early in the 19th century.

Needwood District of Staffordshire between Burton and Lichfield. It was once a royal forest and covers approximately 100 sq. m. It was formerly full of deer and other wild animals. Most of it has been disforested, but some parts remain woodland and the name is used. Much of the land belongs to the Duchy of Lancaster.

Negative In photography a term used for the plate or film on which a picture is developed with its lights and shades the reverse of what occurs in nature. Paper negatives were first used, but were superseded by glass in the wet plate of the collodion process and the later dry plate, these in turn being largely displaced by the roll film.

Negligence Term used in law, meaning want of reasonable care. Those guilty of negligence are liable to be summoned before the courts and made to pay damages. Negligence occurs in connection with the driving of motor cars, the keeping of property in repair, failure to erect fences, etc. If any person is injured by negligence of this, or any other kind, he can, if he proves his case, recover damages. It is for the jury to say whether or no an accident is due to negligence. See ACCIDENT.

Negotiable Instrument Document which, by the act of transferring it, conveys the legal right to the property it represents. Cheques, bills of exchange and promissory notes are negotiable instruments, as are dividend warrants and bills of lading and bonds payable to bearer. On the other hand share certificates and the deeds relating to real property are not negotiable instruments. Custom has a good deal to do with the distinction; if it can be shown that a particular class of document has been regarded, in the trade concerned, as a negotiable instrument, the courts will uphold this view.

Negrito Spanish name denoting diminutive peoples of the black race in S.W. Asia, and the allied negrito pygmies of

equatorial Africa. Dark-skinned, black-haired, the adult male stature never exceeding 4 ft. 11 in., the Asiatic section comprises the Andamanese of the Bay of Bengal, the Semang of Malaya, the Aeta of the Philippines and the Tapiro of Dutch New Guinea. The African pygmies, usually shorter, even down to 4 ft. 4 in., yellowish or reddish-brown, include such groups as the Bambute, Akka and Batwa.

Negro Name denoting dark-skinned, woolly-haired African peoples. A branch of the negroid division of mankind which includes the E. Asiatic Papuo-Melanesians, the pure negro race inhabits W. Africa, S. of the Sahara; an eastern or Nilotic section, betraying more ethnic intermixture, extends from the E. Sudan to the Kenya coast. They have narrow heads, broad noses, prominent jaws, large teeth and thick lips. Displaying in places much Caucasian contact, they shared in forming the Bantu peoples. Agricultural or pastoral, they live an unprogressive social life marked by magic-religious beliefs. There are large populations of negroes in the W. Indies and America, whither their ancestors were transplanted as slaves before the abolition of slavery.

THE AMERICAN NEGRO. The negroes in America now number over 12,000,000, mostly descendants of slaves imported from West Africa, but some immigrants from the British West Indies. They were all slaves in the North and South until 1863, working as family servants, artisans and agricultural labourers. In 1865-69 laws were passed giving full civic rights to the negro, although since then the negro in the South has become more or less disenfranchised and is treated as a separate race.

Under the influence of Booker T. Washington the negroes rose steadily, becoming good farmers and artisans, with efficient educational and religious institutions of their own. Negroes have risen to eminence in all walks of life.

The negro question, however, is still a major problem in the U.S.A., and occasional lynchings testify to the acuteness of feelings against miscegenation, while social recognition of the educated negro is the exception rather than the rule.

Nehemiah Jewish cupbearer to the Persian King Artaxerxes Longimanus. Commissioned, in 444 B.C., to rebuild the walls of Jerusalem which Zerubbabel, when restoring the temple, had neglected, he overcame local opposition, encouraged all to co-operate and accomplished the task in 52 days. The Book of Nehemiah, supplementary to Ezra, describes the events at Shushan preceding the return, rebuilding, dedicating the wall and restoring the temple service. After sojourning in Persia for 12 years he revisited Jerusalem.

Nehru Pandit Motilal. Indian Swarajist leader. Born May 6, 1861, he became an advocate in the High Court of Allahabad. In 1919 he turned his magnificent residence into a free school, and founded the *Independent*, an aggressively nationalist paper. He presided over Congress in 1919 and 1928, supported Gandhi in his non-cooperative campaign, and was imprisoned. He was president of the Swaraj party in 1928, presided over the "All-Parties Conference" at Bombay, which formulated the Nehru Report, laying down a scheme for Dominion status for India. He endorsed Gandhi's "civil disobedience" campaign in 1930, was sentenced to six months' imprisonment, and died at Lucknow, Feb. 6, 1931.

Neilson Julia. English actress. Born June 12, 1869, she at first studied music with conspicuous success, but later abandoned it for the stage, and in 1888 played *Galatea* to the Pygmalion of Lewis Waller. She married Fred Terry and appeared mostly under Beerbohm Tree's management, until her husband began management in 1900, since when she has appeared with him. Her best known parts have been Ann Page in *The Merry Wives of Windsor*, Hester Worsley in *A Woman of No Importance*, Nell Gwynn in *Sweet Nell of Old Drury*, and Lady Blakeney in *The Scarlet Pimpernel*.

Neilston Town of Renfrewshire, on the L.M.S. Ry., 10 m. S.W. of Glasgow. It has various industries connected with cotton. Pop. 15,300.

Nejd Kingdom of Eastern Arabia. A lofty plateau, it is largely desert, with numerous fertile oases in the north and east, supporting a large settled population. The products include dates, barley, wheat, hides, fruit, camels, and horses. Riyadh is the capital. Pop. (estimated), 3,000,000.

Becoming a Turkish dependency in 1871, Nejd retained a measure of independence till its liberation by Ibn Sa'ud (q.v.) between 1905 and 1914. After the Great War Ibn Sa'ud and his Wahhabi followers extended their dominions to include the Hejaz (q.v.).

Nelson Borough of Lancashire, 30 m. South from Manchester on the L.M.S. Ry. The chief industries are cotton mills and engineering works. Pop. (1931) 38,306.

Nelson Town of British Columbia, 1102 miles from Winnipeg and reached by both the C.P.R. and C.N.R. lines. It stands on Kootenay lake and is the chief town of a district in which lumber is cut and silver mined. There are saw mills and smelting works. It is also a port for the shipping on the lake. Pop. 5230.

Nelson City and seaport of New Zealand, on Tasman Bay, on the north coast of South Island. There is a fine harbour and the town has some manufactures. Nelson is the capital of a district which has an area of 10,000 sq. m. Pop. 12,080.

Nelson River of Canada. It flows from Lake Winnipeg in a N.E. direction into Hudson Bay, where at its mouth is Port Nelson. It is 400 m. long, but is of little use for shipping owing to its rapids. The chief tributary is the Burntwood.

Nelson Horatio, Viscount. British admiral. Born at Burnham Thorpe, Norfolk, Sept. 29, 1758, he entered the navy in 1770, and in spite of bad health saw continuous service until 1787 when he married and retired with his wife to Burnham Thorpe.

Returning to the navy in 1793, he fought in the Mediterranean and while commanding the Naval Brigade at Calvi, Corsica, lost his right eye. He continued his service in the Mediterranean, and as Commodore was responsible for the victory off Cape St. Vincent in 1797. In the same year he lost his right arm in an engagement at Santa Cruz.

In 1798 he won an overwhelming victory over the French in Aboukir Bay (see Nile, Battle of the). His rewards for this victory included a barony, large sums of money, and the Dukedom of Bronté in Sicily. He formed in this year a liaison with Emma, Lady Hamilton, which lasted until his death, their daughter, Horatia, being born in 1801. In 1801 he won another

victory at Copenhagen, and in Oct., 1805, Nelson, now a viscount and Commander-in-Chief, sailed to his last victory. The Battle of Trafalgar ended in the annihilation of the Franco-Spanish fleet, but Nelson, mortally wounded, died as victory was assured, on Oct. 21.

The most famous of British seamen, he was a great leader of men, well known for his humanity and kindness, and an unrivalled strategist. In recognition of Nelson's services to his country, his brother was made Earl Nelson of Trafalgar.

Nemesis In Greek mythology, the personification of retribution. She was regarded as the goddess charged with readjusting immoderate good fortune and checking the presumption attending it.

Nemi Lake of Italy. Supposed to be the crater of an extinct volcano, it is situated in the Alban Hills, 20 m. from Rome. In the hope of finding valuable treasures, in 1929 the lake was partly drained, but the finds, which included remains of two galleys, did not come up to expectation.

Nen River of England. It rises in Northamptonshire and flows through that county and Lincolnshire to the Wash. It is 90 m. long and on its banks are Northampton, Wellingborough, Peterborough and others.

Nenagh Urban district and market town of Tipperary, Irish Free State. It stands on the river of the same name, 96 m. from Dublin. The industries include slate quarrying. Pop. 4,500.

Neolithic Term denoting the highly finished and polished stone implements characterising the later phase of the prehistoric Stone Age, contrasted with the ruder workmanship of the earlier or palaeolithic phase. They are found scattered throughout Europe and elsewhere, associated with other evidences of a well-marked civilisation, to which the same term is now applied. During this cultural stage mankind started on agriculture, and introduced plant and animal domestication, pottery, basketry and weaving. The grinding of stone edge-tools led to carpentering, improved navigation, megalithic building, settled homes and ever-increasing refinement, which culminated in the development of metal-smelting. Neolithic conditions still persist among various backward peoples.

Neon Gaseous element occurring in minute proportions in the atmosphere. It is associated with argon from which it was isolated in 1898 by Sir William Ramsay. Its symbol is Ne, atomic weight 20.2 and its spectrum shows red, orange and yellow lines. Neon is used in special lamps for producing an orange-red light by passing an electric discharge through the gas.

Neophyte Term "newly planted," denoting in early Christianity a newly baptised person. Neophytes passed through a pre-baptismal stage as catechumens. St. Paul enjoined Timothy not to select bishops from neophytes (1 Tim. iii.). The Roman Church designates as such newly converted heathens or heretics, and sometimes newly ordained priests or novices of a religious order.

Neo-Platonism Last school of pagan philosophy. Combining elements of Platonism and Stoicism with Oriental doctrines, it was influenced by the philosophy of Philo and the Gnostics, emerged in 3rd-century Alexandria under Ammonius Saccas, and was profoundly re-

modelled by Plotinus, whose views were popularised by Porphyry and modified in the direction of mysticism by Iamblichus. It influenced Clement, Origen, Augustine and other early Christian fathers, but succumbed to the rival teaching of Christianity.

Neoptolemus (or Pyrrhus). In Greek legend, son of Achilles and Deidamia. Handsome and brave, he proceeded to Troy in the last year of the war, entered the city with the heroes concealed in the wooden horse, slew King Priam and afterwards his daughter Polyxena, and took to Epirus Hector's widow Andromaché, awarded to him by lot. He plundered the Apollo temple at Delphi, wedded Hermione, and was slain by her promised consort, Orestes.

Nepal Kingdom of Asia, in the Himalayas. It has Tibet on the north, Sikkim on the east and India on the south and west. It is 54,000 sq. m. in extent and is governed by a maharajah. Katmandu is the capital. The inhabitants are mainly Gurkhas and the state has an army of 45,000 men. Cattle are reared and wheat, rice and other crops are grown. There are large forest areas. The country is quite independent, its autonomy having been recognised by Great Britain in a treaty signed in 1923. Pop. 5,600,000.

Nepheline A rock-forming mineral consisting of a silicate of alumina, soda and potash, and occurring as hexagonal prisms, usually white or colourless, in lavas, phonolite and other eruptive rocks, associated with potash felspar or with garnets, mica and hornblende. A dark coloured greasy variety, elaeolite, occurs in certain syenites.

Nephrite A compact variety of either tremolite or actinolite, two closely allied minerals of the amphibole group. Nephrite or jade is white or green in colour, very hard and tough. White nephrite is a tremolite mineral consisting of silicate of calcium and magnesium, while green nephrite or greenstone has, in addition, iron as in actinolite.

Nephritis Inflammation of the kidneys. Its most prominent symptom is the presence of albumin in the urine; dropsy frequently supervenes. Acute nephritis commonly arises from exposure to cold, especially after alcoholic intemperance; from irritant poisons; or as a complication of various other acute diseases. Local means of relieving congestion, such as hot fomentations, and confinement to a warm bed are important; should the disease reach the chronic stage the patient may have to anticipate a semi-invalid future. See BRIGHT'S DISEASE.

Neptune Roman god identified with Poseidon (q.v.), god of the sea. He is represented as holding a trident, the emblem of his power.

Neptune Outermost of the larger planets of the solar system. It was discovered by Galle at Berlin Observatory in 1846, its position having been indicated by Leverrier. Its distance from the sun is 2794 million miles and its year equals 165 of ours. The diameter of the planet is about 31,225 m., slightly exceeding that of Uranus, and its mean density is 1.54. It has one satellite which moves in a retrograde orbit in about five days, twenty-one hours.

Nereus In Greek legend a god of the sea, son of Pontus and Gaia. He had 50 daughters who were called the Nereids, one being Thetis, the mother of

Achilles. He was supposed to possess prophetic powers and in art is shown as an old man holding a trident.

Neri Philip. Italian saint. Born at Florence, July 21, 1515, at the age of 18 he went to Rome. In 1564 he became a priest, and after gaining a number of disciples he instituted the religious exercises for which he is famous. He encouraged musical and religious entertainments at holiday times, the origin of the Oratorio (q.v.). In 1564 he established the Oratory, a community which was approved by the Pope. He died May 26, 1595, and was canonised in 1622.

Nernst Walter. German chemist. Born at Briesen, Germany, June 25, 1864, he became Director of the Physical Institute at Charlottenburg until 1924, after studying and assisting at different universities. In 1925 he took up the same position in the University at Berlin.

Nernst is known for his invention of an electric glow lamp and for his statement of the third law of thermo-dynamics. He also initiated important measurements in specific heats at low temperatures. In 1920 he received the Nobel prize for physics.

Nero Roman emperor. Born at Antium, Dec. 15, A.D. 37, he was adopted by the Emperor Claudius in 50, and succeeded him in 54, displacing Claudius' son, Britannicus. His reign was marred by a series of murders attributed to him. His mother, two successive wives, and Britannicus were among the victims. He blamed the Christians for the burning of Rome, and had many put to death, afterwards building a magnificent new city. In 68 his troops revolted in favour of Galba, and Nero fled from Rome, saving himself from execution by suicide on June 9.

Nerve White glistening cord-like structure consisting of a bundle of numerous nerve fibres, each measuring about $\frac{1}{100}$ inch in thickness and forming part of the nervous system controlling and regulating the movements and functions of the body. Each consists of an axis surrounded by a fatty layer and a delicate membrane. All nerves are outgrowths from the cerebro-spinal system, those conveying impulses from the brain are termed motor or afferent nerves, while those conveying impulses to the central system are known as efferent or sensory nerves, and upon their nerve roots are ganglia or masses of nerve fibres and cells.

Ness Loch and river of Inverness-shire. The loch is 22 m. long and is used to form the course of the Caledonian Canal. Its waters are carried to the Moray Firth by the River Ness which is 7 m. long.

Nessus .In Greek legend one of the centaurs. He was shot by Hercules with a poisoned arrow and, in revenge, he gave to Deianeira, the wife of Hercules, a poisoned cloak. Hercules put this on and met a painful death. The phrase "Nessus shirt" is derived from this incident.

Neston District of Cheshire, 13 m. from Chester and 191 from London by the L.M.S. Rly. Situated on the estuary of the Dee, it is a coal mining area. Neston forms part of the urban district of Neston and Parkgate. Pop. 5191.

Nestor In Greek legend, son of Neleus and Chloris. Sharing in youth the Cypriote adventure and the hunt for the Caledonian boar, he took part as the aged King of Pylos in the Trojan war. His wise counsels were highly valued by the other Greek chieftains.

Net-Ball (or Basket Ball). Had its origin in the United States in 1892, where its vogue as an indoor game quickly spread, though in England it is frequently played outdoors upon grass or asphalt by English women and girls. It is played on a court 95 ft. long; at each end is a goal consisting of a small bottomless net suspended on posts 10 ft. high. The aim is to throw the ball through the opponents' net, by passing from one player to another. A team may comprise from six to nine players.

Netherfield Town of Nottinghamshire, 2 m. from Nottingham. It has factories for the manufacture of lace and hosiery, and is part of the urban district of Carlton.

Netherlands (or Low Countries). Former designation of the countries now known as Belgium and Holland. In modern speech it refers to the eleven provinces of Holland. See NETHERLANDS, Kingdom of the.

The Netherlands has had a stormy and heroic history, being a long struggle against the supremacy of Spain and the burden of Roman Catholicism which that country laid upon it. William the Silent is the dominating figure of the struggle, and his successors include our own William III. The Dutch Republic emerged from the struggle at the end of the 16th century, and for the next century was a maritime and commercial power of prime importance. At the end of the 18th century it became the Batavian Republic, and the modern kingdom came into being in 1813. Belgium became a separate kingdom in 1831. See BELGIUM, HOLLAND.

Netherlands Kingdom of the. Country of north-western Europe, commonly known as Holland. It is bounded on the east by Germany, on the south by Belgium, and on the north and west by the North Sea. The country is mainly low-lying, and is drained by the Rhine, the Maas (Meuse) and the Schelde. The Zuider Zee has now been separated from the sea by a dike, and has already been partially reclaimed. Dikes have been constructed at different times to protect the country from inundation by the sea, and the rivers have been largely canalised. Of the total area (12,761 sq. m.) nearly half is below sea-level. Pop. (1931), 7,938,114.

The kingdom, set up in 1814 as a bulwark against France, at first included the Belgian Netherlands, but Belgium broke away 1830-31. Thereafter Holland played little part in European history, remaining neutral throughout the Great War. In 1932 Holland entered into a tariff union with Belgium and Luxembourg.

Holland is ruled by a constitutional monarch (Wilhelmina) and the States General, consisting of an upper chamber of 50 members and a lower chamber of 100 deputies. There is universal suffrage over 25 years of age. The political capital is the Hague, and the commercial capitals Amsterdam and Rotterdam. Other large towns are Utrecht, Groningen and Haarlem.

The country is primarily agricultural, intensive stock-breeding, general agriculture and flower-growing being carried on. The chief manufactures are shipping, bricks, margarine, cocoa, linen, cottons, etc. Coal is produced, and there is a great diamond-cutting industry at Amsterdam.

The country has extensive possessions in the East Indies and the West Indies. See JAVA, SUMATRA, BORNEO, MOLUCCAS, SURINAM.

Netley Village of Hampshire. It stands on Southampton Water opposite Southampton. The large military hospital at Netley, opened in 1858, is called the Royal Victoria Hospital. Near are the extensive and beautiful ruins of a Cistercian abbey.

Nettle Typical genus of herbs of the nettle order, scattered over temperate and subtemperate regions (*Urtica*). The stem and leaves bear stinging hairs. Of the three British species the tender shoots of the great perennial downy *U. dioica*, 2 to 4 ft. high, are used as a pot-herb. The strong bast-fibres of the stem have been fashioned into yarn and paper. The smaller annual species is smooth-leaved except for the stinging hairs; the coarser Roman nettle, long naturalised, is the most virulent.

Nettlerash (*Urticaria*). Diffuse redness of the skin accompanied by wheals, raised and pale in colour, causing great irritation and itching. The rash is produced by some article of diet, such as shell-fish, which does not suit the individual, and will disappear when the cause is removed. An aperient should be given, and a cooling lotion or dusting powder will allay the irritation.

Nettle Tree Handsome tree of the elm order, indigenous to the Mediterranean region eastward to China (*Celtis australis*). It is straight-trunked, 30 to 40 ft. high, with toothed, lance-shaped leaves and small, sweet blackberries. The wood is dense and fine-grained; the tough, piliant branches make good hayforks. The allied *N. American C. occidentalis* is the hackberry.

Neuchâtel Capital of the Swiss canton of that name. It is at the north-eastern end of Lake Neuchâtel. It is built partly on the slope of the Chaumont, and partly on new alluvial land. Pop. 23,152.

Lake Neuchâtel, the largest in Switzerland, has an area of 92½ sq. m., is 23½ m. long, and from 3½ to 5 m. broad. It receives the River Thièle and several others. The chief places on its shores are Estavayer, Yverdon, Serrières and La Tène.

Neuilly District of Paris, on the Seine. It is noted for its midsummer fair. On Nov. 27, 1919, Bulgaria and the Allies signed a treaty of peace here.

Neuralgia Term, literally "nerve pain," often used loosely for any pain of obscure origin. It strictly denotes pain in the whole or part of a sensory nerve without recognisable structural change. It may be *tic douloureux*, pain in the fifth facial or trigeminal nerve; *migraine*, referred to half of the head; intercostal, pain in the nerves running from the spinal cord between the ribs to the front; or sciatica. It sometimes results from pressure by a tumour, or indirectly from decayed teeth.

Treatment.—Neuralgia will often yield to aspirin tablets, two at a time if they suit the individual, and to the application of external heat. Facial neuralgia is sometimes due to decayed teeth or to defective eyesight, and sufferers should have these matters attended to. A run-down condition and exposure to sudden cold is often the cause.

Neurasthenia Term, literally "nerve weakness," denoting a condition of nerve exhaustion which renders the sufferer incapable of sustained exertion. It may arise from physical or mental overstrain, hardship, worry or self-indulgence, and may be attended by constipation, loss of appetite, sleeplessness, irritability and depression. It

may affect the brain, heart, stomach or the sexual life.

Neuritis Inflammation of one or more bundles of nerve fibres. Exposure to cold or injury may affect a single nerve; this localised neuritis impairs muscular action, occasioning, if the facial nerve be affected, facial paralysis. Multiple neuritis, due to general or constitutional causes, results in the breaking down of the smaller nerves. It may arise from acute or chronic poisoning by alcohol, lead, arsenic and other substances, or the toxins of acute infective diseases, e.g., diphtheria and influenza.

Neurosis Nervous disorder not associated with recognisable organic changes. It may take the form of hypochondriasis, hysteria, neurasthenia phobias or obsessions (q.v.). It is distinguishable from psychoses, mental disorders such as delusional insanity or melancholia; the generic term psychoneurosis conveniently embraces various borderland cases. Occupational neurosis is any nervous disorder caused by the sufferer's occupation, such as writer's cramp. The adjective neurotic, frequently applied to sensitive women, may loosely indicate tendencies not referable to a distinct neurosis.

Neutrality Condition of a state, abstaining from participation in a war between other states, and maintaining an impartial attitude in its dealings with the belligerent states, with the recognition of this impartiality by the warring states. The neutral state cannot supply any ships, men, food or money to those at war, nor erect special wireless stations, through which news can be transmitted.

Neuve Chapelle Village of France in the department of Nord. During the Great War it was a strategic position of great importance, lying at the junction of several roads.

The Battle of Neuve Chapelle was fought on March 10-12, 1915, between the British and the Germans, and was an Allied victory, though not carried out to its desired conclusion. Casualties were heavy on both sides, the British losing a total of 12,811. Indian troops took a share in this battle.

Neva River of Russia. It rises in Lake Ladoga and flows past Leningrad to the Gulf of Finland, which it enters by several mouths. Although only 45 m. long, it is important from the commercial point of view, as it unites Leningrad with the Baltic, and by means of other waterways with the Caspian.

Nevada Western state of the United States. It is chiefly a mining area and produces a good deal of gold and silver. The soil is on the whole unfruitful, but irrigation works have improved it, and a certain quantity of wheat, barley and other crops are grown. The state area is 110,690 sq. m., and the capital is Carson City. It is governed by a legislature of two houses, and sends two senators and one representative to Congress. Pop. (1930) 91,058.

Neville English family. In the Middle Ages it had great estates in the N. of England, and its members were Earls of Westmorland and held other titles. The most prominent of the Nevilles was Richard, Earl of Warwick, the king maker. The great castles at Raby and Middleham once belonged to the Nevilles, who lost their power in the north during the reign of Elizabeth. To-day the

Nevilles are represented in the peerage by the Marquess of Abergavenny and Lord Braybrooke.

Neville's Cross Spot near Durham. There on Oct. 17, 1346, the English army defeated a Scottish army under King David II., who was among the prisoners. There is an old cross here.

Nevin Village and seaside resort of Caernarvonshire. It is 6 m. north-east of Pwllheli, and was formerly a considerable town. Fishing is carried on.

Nevinson Christopher Richard Wynne. English artist. Born on Aug. 18, 1889, he was educated at Uppingham, the Slade School and Paris. He first exhibited work in London in 1910, and has exhibited in London, Paris, New York, Washington and Chicago, continually since then. He served in Flanders in 1914-15, and was discharged from the army in 1916. He exhibited war paintings at the Leicester Galleries, and on his appointment as Official Artist, returned to France in 1917. His works have been purchased by the British War Museum and the Canadian War Memorials Fund. In 1920 he was the official representative of British Art at Prague, by invitation of the Czechoslovakian Republic.

Nevis One of the Leeward Islands, British W. Indies. Its area is 50 sq. m., and its capital Charlestown. Sugar and cotton are exported.

Nevis Ben. See BEN NEVIS.

Newark Borough and market town of Nottinghamshire. It is on the Trent, 19 m. from Nottingham and 120 from London, on the L.N.E. Rly. The town is an important agricultural centre, but has also engineering works, malt houses, breweries and other industries. Its castle withstood three sieges in the Civil War, and the church of S. Mary Magdalene has an octagonal spire 223 ft. high. Pop. (1931) 18,058.

Newark is called Newark-on-Trent to distinguish it from other Newarks. One of them is near Woking and another near Port-Glasgow.

Newark City of New Jersey, the largest in the state. It stands on the Passaic River, 9 m. from New York. There are manufactures of chemicals, clothing and other articles. Pop. 442,337.

Newbattle Village of Midlothian. It is on the South Esk, adjoining Dalkeith. Here is Newbattle Abbey, the seat of the Marquess of Lothian.

Newbolt Sir Henry John. English author and poet. Born June 6, 1862, he was educated at Clifton College and Corpus Christi College, Oxford. He was called to the Bar in 1897 and practised until 1899. He created his literary reputation with the ballads *Admirals All* (1897), followed by other stirring sea poems—including *Drake's Drum*. He wrote two novels—*The Old Country* and *The New June*. *St. George's Day and Other Poems* appeared in 1918, and in 1920 he published his *Naval History of the Great War*. He was Controller of Wireless and Cables during the war, and was knighted in 1915.

New Brighton Watering place of Cheshire. It is on the Mersey, 4 m. from Birkenhead, and forms part of the borough of Wallasey. It has a steamship wharf, and is connected with Liverpool and elsewhere.

New Britain Island of the East Indies. It is near New

Guinea, from which it is divided by St. George's Channel. It covers 9600 sq. m. and Rabaul is the capital: another port is Kokopo, formerly known as Herbertstone. The island is mountainous and has volcanoes. It produces rubber, coffee, etc. The only part that is settled and cultivated is the Gazilli peninsula in the north. Pop. 81,900.

New Brunswick Province of Canada. Lying east of Quebec, with the state of Maine on the south-west, it borders the Gulf of St. Lawrence on its north-east shore, and on the south connects with Nova Scotia and with the Atlantic by the Bay of Fundy. Mainly undulating, it is mountainous in the north-west, is well forested, and has many lakes. The chief rivers are the St. John, Miramichi and Restigouche. Lumbering, agriculture, fisheries and mining are the chief industries, and the tourist and hunting business is extensive. There are considerable water powers.

New Brunswick, once part of Acadia, was ceded by France in 1713 and settled by the English in 1764. Separated from Nova Scotia in 1784, it joined the Canadian federation in 1867 and sends 11 members to the Dominion House of Commons, and 10 senators. Fredericton is the capital and the seat of the provincial government, but St. John's (q.v.) is the largest city. Pop. (1931), 408,256.

Newburgh Burgh and seaport of Fifeshire. It is 7 m. from Ladybank by the L.N.E. Rly., and is on the Firth of Tay. There is a harbour for the fishing, and some manufactures. Pop. (1931) 2152.

The title of Earl of Newburgh, dating from 1660, is now held by the Italian family of Giustolanti-Bandini. The earl's eldest son is known as Viscount Kynsaird.

Newburn Urban district of Northumberland. A colliery centre, it is 6 m. west of Newcastle, and 276 m. from London by the L.N.E. Rly. The town stands on the Tyne, and has metal works and some manufactures. Pop. (1931) 19,539.

Newbury Borough and market town of Berkshire. It stands on the Kennet, 17 m. from Reading and 63 from London, by the G.W. Rly., on which it is a junction. The chief trade is in agricultural produce and sheep. At one time Newbury was noted for its wool. It is on the main road from London to the west. The borough includes Speenhamland. Pop. (1931) 13,336.

During the Civil War, Sept. 20, 1643, the royalists were defeated near Newbury, but on Oct. 26, 1644, the parliamentary forces were defeated here.

New Caledonia Island of Australasia, in the S. Pacific Ocean. It has an area of 7650 sq. m. and was discovered by Captain Cook in 1774. In 1853 it became French, and some ten years later was founded as a penal settlement, which it continued to be until 1895. Pop. 47,308.

Newcastle City and river port of New South Wales. It stands at the mouth of the river Hunter, 73 m. by railway from Sydney. A mining centre, it has accommodation for shipping the coal. Iron and steel works were established here in 1915 and the city is the largest in the state after Sydney. Pop. (with suburbs) 99,000.

Newcastle Duke English title borne by the family of Pelham-Clinton. The first duke was William Cavendish (1592-1676). His title became

extinct when his son died in 1691. From 1694 to 1711 his son-in-law, John Holles, was Duke of Newcastle.

In 1715 Thomas Pelham, who had inherited the estates, was made Duke of Newcastle-upon-Tyne and in 1756 he was made Duke of Newcastle-under-Lyme. He died in 1788 when the first dukedom became extinct, but the second passed to a nephew, Henry Flennes Clinton. From him the present duke is descended. Henry, the 5th duke (1811-84) was a secretary of state, 1852-54 and 1859-64.

The earl's eldest son is called the Earl of Lincoln. He owns valuable estates in the city of Nottingham. In 1931, following the death of Henry, the 7th duke, the family seat, Clumber, near Mansfield, was closed.

Newcastle Market town of Co. Limerick, Irish Free State. It is 27 m. south-west of Limerick, on the G.S. Rlys. It is an agricultural centre.

Newcastle Seaside resort of Co. Down, Northern Ireland. It is 36 m. south of Belfast and is reached by the G.N. of Ireland and Belfast and Co. Down Rlys. Pop. 1800.

Newcastle Town of Natal. It is 160 m. from Durban by railway, and stands under the Drakenberg Mts. The principal industry is the mining of coal. Others are iron and steel works, a creamery and trading in wool and grain. Pop. 4860.

Newcastle-under-Lyme Borough and market town of Staffordshire. It is 16 m. from Stafford, by the L.M.S. Rly., on the little river Lyme. The industries include the making of chemicals, pottery and clothing and around are coal mines. The district near was once the forest of Lyme. Pop. (1931) 23,246.

Newcastle-upon-Tyne City, municipal county and port of Northumberland. It is on the Tyne, 8 m. from the sea and is an important colliery and shipbuilding centre. Other industries are engineering, electrical works and chemical manufactures. Originally a Roman station, Newcastle has a castle built by Henry II., and its cathedral, the seat of a bishop, dates from the late 14th century. There are colleges of medicine and science belonging to Durham University. The borough sends four members to Parliament. It has a broadcasting station (288.5 M., 1 kW.). Pop. (1931) 283,145.

Newchwang Seaport of Manchuria. It refers both to the town and the port, although these are 40 m. from each other. The town proper is on the Liao river, the port, which is closed by ice for three months in the year, is one of the treaty ports, and from it large quantities of the soya beans are exported. Pop. (1927) 65,600.

New Cross District of London. To the south-east, it is 5 m. from the city, in the borough of Deptford, on the S. and District Rlys. Here are the Goldsmith's College and the ground of the Millwall Football Club.

Newdigate Sir Roger. English antiquary. Born May 30, 1719, he had an active political career, but is chiefly remembered for his collection of antiquities. Among other gifts to the University of Oxford, he founded the Newdigate prize of twenty-one guineas for English verse, which is open for competition annually to undergraduates of

Oxford University. It was first awarded in the year of his death, which took place at Albury on Nov. 23, 1806.

Newel Term in architecture for the pillar or post forming the central support of a spiral staircase of wood or stone, and from which the steps radiate. In modern carpentry a newel is the more or less ornamented post at the head, foot or angles of a staircase, and giving support to a handrail.

New England Name given to six north-eastern states of the United States. They are Maine, New Hampshire, Connecticut, Massachusetts, Rhode Island and Vermont. The first settlement was made here in 1620 and the colonies remained an English possession until 1783. They formed themselves into a confederation in 1643.

Newent Market town of Gloucestershire. It is 10 m. north-west of Gloucester and 124 from London by the G.W. Rly. Pop. (1931) 2325.

New Forest District of Hampshire. In the south-west of the county, it covers about 150 sq. m., and is the largest stretch of woodland in the country. In it are several towns among them Lyndhurst, Brockenhurst, Ringwood and Minstead. Beaulieu Abbey and Rufus Stone are objects of interest. The trees are chiefly oak and beech and the scenery is of great beauty. The forest has its own breed of ponies. It is usually believed that the forest was created by William the Conqueror.

Newfoundland British dominion of N. America. It lies E. of the Gulf of St. Lawrence, and has an area of 42,754 sq. m., including Labrador (q.v.). It is the oldest British colony, having been formally annexed by Sir Humphrey Gilbert in 1583, less than a century after the discovery by John Cabot.

It is the centre of the cod-fishing industry, and has also important herring and other fisheries. Next in importance comes the pulp and paper-making industry. The country is rich in minerals, silver, nickel, copper, asbestos, iron and coal. St. John's is the capital. Other towns are Harbour Grace, Bonaville, Placentia and Carbonara. The government consists of an executive council under the Governor, a legislative council of 24 members, and a house of assembly of 40 members. Pop. 267,330.

Newfoundland Dog Large breed of dog. Imported into Britain in the 18th century, it has become a favourite companion and guard. Broad-backed, deep-chested, it has a massive head, muscular hindquarters and thick, well-covered tail. Dogs should average 72 in. in height, bitches 25 in. Essentially a large retriever, it is specially trained to rescue drowning persons. The shaggy, oily coat is preferably black with one or two white patches: the smaller black Labrador dog is a part ancestor of the black retriever.

Newgate London gaol, demolished in 1903. The name derives from the fact that the prison was originally in the gate house of the New Gate. There was a prison on this spot for more than a thousand years. The Central Criminal Court now occupies the site.

New Glasgow Town of Nova Scotia. It is on the East River, 105 m. from Halifax, and 3 m. from its port, Pictou Harbour, by the C.N.R. There are steel works and coal mines. Pop. 8974.

Newgrange Monuments

Irish bronze-age cemetery in the Boyne Valley, Co. Meath. There are 17 grave-mounds, the largest, at Newgrange, being a truncated cone, 70 ft. high, and 315 ft. across at the base. It contains a corbelled chamber 19½ ft. high with three side-chells, displaying spiral and other designs, and approached by a 63 ft. covered gallery.

New Guinea Island of the Eastern Archipelago, the largest after Australia and Greenland. 330,000 sq. m. in area, it is partly British and partly Dutch. With a long coastline, it is mountainous, thickly forested and largely unexplored, and has several navigable rivers. Rubber, valuable woods, pearls, copra and agricultural products are the chief exports, and cocoa and coffee are grown. Gold, copper and phosphates have been found. The natives are Papuan negroes with a mixture of Malay and Polynesian blood. Some are given to cannibalism. Pop. (estimated), 480,000.

New Hampshire State of the United States. In the east of the country, it is one of the New England states and has a short coastline on the Atlantic Ocean. Its area is 9341 sq. m. Concord is the capital, but Manchester is the most populous town. Mainly agricultural it has a considerable extent of forest land, and was one of the 13 original states of the Union. The University of New Hampshire is at Durham. Pop. (1930) 465,293.

New Hanover Island of the Bismarck Archipelago. It lies off the coast of New Guinea and covers 540 sq. m. Coffee, rubber, cotton and other tropical products are grown. The island was taken by the British from the Germans in 1914 and is now governed by Australia under mandate from the League of Nations.

Newhaven Urban district and seaport of Sussex. It is 56 m. from London by the S. Ry. It stands at the mouth of the Ouse, and is chiefly important since the most direct sea route from London to Paris is from Newhaven to Dieppe. Pop. (1931) 6790.

New Haven City of Connecticut, U.S.A. It is the seat of Yale University, which was transferred here in 1716, sixteen years after its foundation. It has manufactures of iron and steel goods, fire arms, hardware, cutlery, etc., and is also the chief seaport of the state, owing to its position on New Haven Bay. Pop. (1930) 162,655.

New Hebrides Island group of the S. Pacific, belonging to France. They lie between the Santa Cruz Islands and the Loyalty Islands, and are about 30 in number, only 20 being inhabited. The principal ones are Mallicolo, Sandwich, Erromanga and Espiritu Santo. They trade in copra, fruits, sandalwood and similar produce. The total area is 5500 sq. m. Pop. 70,000.

New Ireland Island of the Bismarck Archipelago. As Neumecklenburg, it was a German possession, but in 1914 it was taken by the British, and is now governed by Australia under a mandate from the League of Nations. The chief town is Kairangi, and the chief industry the growing of coconuts.

New Jersey State of the United States. It lies to the south of New York State and has a long coast-

line on the Atlantic Ocean, but its area is only 8224 sq. m. Trenton is the state capital, but other cities, Newark, Jersey City and Paterson, are larger. Another populous city is Camden, while it contains Atlantic City and Hoboken on the Hudson. The state is largely an agricultural area and has valuable fisheries. It was one of the 13 original states of the Union. Pop. (1930) 4,041,334.

Newlands Corner Beauty spot of Surrey. It is on the downs, 3 m. from Guildford, and from it wonderful views of the surrounding country can be obtained. Its height is 570 ft.

Newlyn Seaside resort of Cornwall. It is situated on Mounts Bay. It has a good harbour and is a fishing port, but it is better known for its association with artists. About 1880 a number of artists made their homes here and the group became known as the Newlyn School, the distinctive feature of which was the amount of work done in the open. Stanhope Forbes was a member.

Newmains Town of Lanarkshire. A coal mining centre, it is 2 m. from Wishaw, by the L.M.S. Ry. Here are ironworks. Pop. (1931) 2800.

Newman John Henry. English Cardinal, theologian and writer. Born Feb. 21, 1801, he was educated at Trinity College, Oxford, where he formed a friendship with Pusey, Hurrell Froude and others. After ordination he turned from Evangelicism and became one of the leaders of the Oxford Tractarian Movement, or the High Church Movement. The movement resulted in the conversion of many to Roman Catholicism, including Newman, who resigned his living at Oxford, and became converted in 1845. From 1854-58 he was rector of the Catholic university in Dublin, and in 1859 founded a school in connection with Birmingham Oratory. He was made a cardinal in 1879 and died at the Oratory, Aug. 11, 1890.

He wrote in verse and prose, and was famous as a lecturer and preacher. Of his works, his *Grammar of Assent*, (1870) on the philosophy of faith, and his *Apologia pro Vita Sua*, a history of his own religious life, are the best known, and he will always be remembered as the author of the hymn "Lead, Kindly Light." His epic poem, *The Dream of Gerontius*, has been set to music by Sir Edward Elgar.

Newmarket Urban district and market town of Cambridgeshire, and Suffolk. It is 13 m. from Cambridge and 70 m. from London, and is the chief centre of horse racing in the country. The races are held on the heath where there are eight courses. Eight meetings are held in the year. The industries are all connected with racing. In the High Street are the headquarters of the Jockey Club and a house once owned by Charles II. The Astley Institute and the King Edward VII. Memorial Hall are notable. Pop. (1931) 9753.

New Mexico State of the United States. In the south-west of the country, it is bounded on the south by Mexico and on the west by the ocean, represented by the Pacific and the Gulf of California. It includes the southern part of California and covers 122,634 sq. m. Santa Fé is the capital, but Albuquerque is larger. It is mainly agricultural, and maize, wheat, cotton, potatoes and fruit are grown. Much of the soil is unfertile, but irrigation works have made it more productive. The state produces a good deal

NEW MILLS

of silver and copper, and there are large forest areas. Pop. (1930) 423,317.

New Mills Market town and urban district of Derbyshire, on the L.M.S. Rly. It is 8 m. from Stockport on the Little Rivers Gyr and Kinder. Cotton is manufactured and in the neighbourhood are coal mines. Pop. (1931) 8551.

Newmilns Burgh of Ayrshire. It is 7 m. east of Kilmarnock, on the L.M.S. Rly. The River Irvine divides it from Greenholm, which is part of the burgh. The chief industry is the manufacture of cotton goods. Pop. (1931) 3979.

New Model Term used for the army raised in 1645 to fight for the cause of the Parliament. It was raised and trained on a new plan, and consisted of about 14,000 infantry and 7000 cavalry. Sir Thomas Fairfax was appointed general and Cromwell led the cavalry. It was responsible for the victory of Naseby and was in a sense the foundation of the standing army of to-day.

Newnes Sir George. English publisher. A son of Rev. T. M. Newnes, a Congregational minister, he was born at Matlock, March 13, 1851. He was educated at Wakefield and in London and entered business in Manchester. In 1881 he started *The Bites* in that city, but three years later he moved it to London, and on it the firm of George Newnes, Ltd., was built. Under his direction this had many successes, the most notable being *The Strand Magazine*. In 1890 Newnes founded *The Westminster Gazette*, which ceased publication in 1927. In 1919 the firm founded *John o' London's Weekly*. From 1885 to 1895 he was Liberal M.P. for the Newmarket Division and from 1900 to 1910 for Swansea. In 1895 he was made a baronet and he died June 9, 1910. His only son, Frank, who succeeded him, was a short time a Liberal M.P.

Newnham College for women at Cambridge. It was opened in 1871 and consists of several halls. There is accommodation for about 200 students.

New Orleans City and port of Louisiana, U.S.A., the commercial capital of the state. It is situated on the Mississippi, rather more than 100 m. from the mouth, and is the great cotton mart of the country, as well as a busy manufacturing centre. The principal industry, after the shipping, is sugar refining. Cotton goods are manufactured, also cigars, footwear and furniture. The Tulane University is here, also the Ursuline Academy and a Jesuit College. There is also a university for negroes. Pop. 387,408.

Settled by the French in 1718, New Orleans was ceded to Spain in 1763. It fell to France in 1800 and was purchased with Louisiana by the U.S.A. in 1803. There was a battle here between England and the U.S.A. in the war of 1812.

New Plymouth Town and seaport of North Island, New Zealand. It is 160 m. by railway from Auckland. It has a good harbour and shipping is the chief industry. Pop. 7625.

Newport Borough, market town and capital of the Isle of Wight. It stands on the Medina, 10 m. from Ryde, and is the centre of the railway system. God's Providence House and the Castle Inn are of interest. Owing to its nearness to Carisbrooke, Newport has associations with Charles I., who

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NEW SOUTH WALES

made here the Treaty of Newport with his enemies in Sept.-Dec., 1648. Pop. (1931) 11,313.

Newport Burgh of Fifeshire. It stands on the Firth of Tay and is reached by the L.N.E. Rly. It is opposite Dundee with which it is connected by a ferry. Pop. (1931) 3275.

Newport County borough, seaport and market town of Monmouthshire. It stands near the mouth of the Uak, 12 m. from Cardiff and 133 from London, on the G.W. and L.M.S. Rlys. A transporter bridge crosses the Uak to the suburb of Maidee. It has extensive docks and a large shipping trade. Other industries are connected with the manufacture of iron and steel. There are also chemical and glass works. Pop. (1931) 89,198.

Newport Seaport of Pembrokeshire. It stands at the mouth of the River Neven, 6 m. from Fishguard. It has a small harbour.

Newport Urban district and market town of Shropshire. It is 145 m. from London and 17 from Shrewsbury, on a joint line of the G.W. and L.M.S. Rlys. The town is an agricultural centre and here is the Harper Adams Agricultural College. Pop. (1931) 5499.

Newport Pagnell Urban district and market town of Buckinghamshire. It is on the Great Ouse, where it is joined by the Ousel, 50 m. from London, by the L.M.S. Rly. The Grand Union Canal passes the town. The town has an agricultural trade and motor car works. Pop. (1931) 3957.

New Providence Chief island of the Bahamas. It is 19 m. long and on it is Nassau, the capital of the group. It produces pineapples and in it are a number of lagoons. Pop. 12,975. See **BAHAMAS**.

Newquay Urban district and seaside resort of Cornwall. It is 14 m. north of Truro, and 281 m. from London by the G.W. Rly. There is a small harbour for the fishing. Pop. (1931) 5958.

New River Artificial waterway. It is in the Counties of Hertford and Middlesex and was made to supply London with water. It is 27 m. long and extends to New River Head at Clerkenwell. It dates from 1609-13, having been made by Sir Hugh Myddelton, and is now the property of the Metropolitan Water Board. The river obtains its water from springs and from the Lea.

New Ross Urban district, market town and river port of Co. Wexford, Irish Free State. It stands on the Barrow, 100 m. from Dublin, on the G.S. Rlys. There is a harbour in the river and the industries include shipping and fishing. The urban district includes Rosbercon in Co. Kilkenny. Pop. 5011.

Newry Urban district and port of Co. Down, Irish Free State. It is on the River Newry, 35 m. from Belfast and 63 from Dublin, on the G.N. (I.) Rly. The newer part is called Ballibot. Here flax is spun and there are some manufactures, but the chief industry is shipping. Pop. (1926) 11,963.

New South Wales The oldest Australian state, situated on the east coast. Discovered by Captain Cook in 1770, settlement commenced in 1788. Under an excellent climate, agricultural and pastoral pursuits are established on a vast scale. Mining is important. The

Bank of New South Wales, an important local institution, is largely interested in the development and progress of the country. There is a variety of coastal and mountain scenery; the Jenolan Caves are in the Blue Mountains. The harbour of Sydney, the capital, is famous. Area 310,372 sq. m. Pop. 2,500,486.

Newspaper Periodical publication that gives the news of the day or the week. The chief newspapers are published daily in the morning, but there are evening and weekly newspapers, the latter including the Sunday papers. In England the earliest newspapers were the news sheets of the 16th century and the pamphlets of the 17th. In 1704 Daniel Defoe started *The Review*, and in 1785 John Walter founded *The Times*. In the 19th century an enormous number of papers were established all over the country.

The outstanding events of the end of the 19th and the beginning of the 20th century were the arrival of a new kind of newspaper marked by the foundation of *The Daily Mail* in 1896 and the speeding up of the means of communication, which made it possible to distribute the London newspapers over a large part of the country early in the day. Some important dailies, however, still cater for the needs of the provinces, e.g., *The Yorkshire Post*, which was founded in 1754 and *The Manchester Guardian*, which was founded in 1821. At the same time enormous improvements were made in printing machinery, and the advertising side of successful newspapers became of paramount importance.

The production of newspapers is now as highly organised as any business in the land. The number of individual papers tends to decline, but total circulations show an enormous increase since the beginning of the Great War.

Guides are published giving the names and addresses of all the newspapers. The owners have their trade organisations, as have the journalists and the compositors who form their staffs. The Newspaper Press Fund exists to help indigent and aged journalists. Newspapers can be sent through the post for a penny, providing the weight does not exceed six ounces.

Newstead Village of Nottinghamshire. It is 3 m. from Nottingham, on the L.M.S. Rly., and has coal mines. Here is Newstead Abbey, originally an Augustinian house. It passed in the 16th century to the family of Byron and was the residence of the family until 1818, when it was sold. Some parts of the old abbey remain. In 1932 the house and park were presented by Sir Julius Cahn to the City of Nottingham.

Newt Genus of the order *Urodela* or tailed amphibia, comprising 18 species of which three are natives of Great Britain. The newts are characterised by having a compressed tail and usually a dorsal fin most marked in the breeding season and amongst the males. They frequent moist places but live in the water when breeding, and like the salamanders, hibernate in winter. The common newt or eel, *Ambystoma vulgare*, is about 3 in. in length.

New Testament One of the two divisions of the Bible. The books therein record the life and teaching of Jesus Christ and the foundation of the Christian Church. Written within the 1st century, A.D., some of them received early recognition and were read publicly in churches sometimes associated with books like the

Clementine Epistle and the Shepherd of Hermas. The 2nd century gradually formed an authoritative list of those recognised as valid in controversy by orthodox and heretic alike. By 365 Athanasius issued a list comprising the existing New Testament books; the Synod of Carthage, summoned by Augustine, 397, gave final sanction to the New Testament canon.

Newton Sir Isaac. English mathematician, astronomer and philosopher. One of the leading pioneers of scientific discovery, he was born at Grantham, Dec. 25, 1642, and educated at the grammar school there and at Trinity College, Cambridge. In 1666, it is said, the fall of an apple suggested to him the law of gravitation (q.v.), but he did not conclude his calculations on this subject until 1684. He sat in Parliament twice, and was Master of the Mint from 1698 until his death. Queen Anne knighted him in 1705. He was a student of alchemy, but is chiefly remembered for his study of gravitation, his work on the spectrum (q.v.) showing the composition of white light, his statement of the laws of dynamics (q.v.), the construction of telescopes, his work in geometry and the differential calculus, the first rules of which he laid down at the same time as Leibnitz. His two chief works were the famous *Principia* and *The Optics*. He died Mar. 20, 1727.

Newton 2nd Baron. British author. Born Mar. 19, 1837. Thomas Wodehouse Leigh was educated at Eton and Christ Church, Oxford. After six years in the diplomatic service he sat in the House of Commons for the Newton division of Lancashire from 1896 until he succeeded to his father's barony in 1899. In 1915-16 he was Paymaster General and from 1916-19 was Controller of Prisoners of War. Newton wrote a *Life* of his old chief, Lord Lyons, 1913, and in 1929 appeared his *Life of Lord Lansdowne*. Lady Newton wrote *The House of Lyme*, this being the Cheshire seat of the family.

Newton Abbot Market town and urban district of Devonshire. It is 20 m. from Exeter and 194 from London, on the G.W. Rly., being situated at the head of the estuary of the River Teign. Beer and pottery are made and there are railway repairing shops. Pop. (1931) 15,003.

Newton-in-Makerfield Urban district of Lancashire. It is 15½ m. east of Liverpool and is a junction on the L.M.S. Rly., which has repairing shops here. It is also a colliery centre. The town is sometimes called Newton-le-Willows. Pop. (1931) 20,150.

Newton Stewart Burgh and market town of Scotland. It is 24 m. E. of Stranraer, by the L.M.S. Rly., and is on the borders of Wigtownshire and Kirkcudbrightshire. The textile industry is carried on and the town, which stands on the Cree, is also a tourist centre. Pop. (1931) 1914.

Newtown Market town and urban district of Montgomeryshire. It is 12½ m. S. of Welshpool and 136 from London by the G.W. Rly. Woollen goods are manufactured here, notably hannel. The urban district includes Llanllwchaearn. Pop. (1931) 5152.

Newtownards Market town of Co. Down, Northern Ireland. It is 14 m. from Belfast by rly., and is near Strangford Lough. The industries centre round the linen manufacture. Pop. (1926) 9587.

Newtown Stewart Market town of Co. Tyrone, Northern Ireland. It is on the River Mourne, 24 m. from Londonderry, on the G.N. (I.) Rly.

New Westminster City and port of British Columbia. It is 12 m. from Vancouver, near the mouth of the Fraser River. It is reached by the C.N.R., which has a ferry service to Victoria. The chief industries are shipping and salmon canning. Pop. 14,495.

New Year's Day First day of the year. The Julian Calendar, introduced by Julius Caesar, made it Jan. 1; in Anglo-Saxon England it was Dec. 25, and in mediaeval Christendom Mar. 25. This became Jan. 1 in Scotland in 1600, and in England in 1752, when the new style was adopted.

New York State of the United States. In the east of the country it has a coastline on the Atlantic Ocean and includes the island of Manhattan, on which New York City stands, and Long Island. It stretches from the sea to the border of Canada. Area, 49,200 sq. m. Albany is the capital. The largest cities after New York are Buffalo, Rochester, Syracuse, Yonkers and Utica. The staple industry is agriculture, especially the growing of vegetables and the production of milk and butter for the metropolis. Iron and gypsum are mined. New York is one of the 15 original states of the Union. Pop. (1930) 12,588,000.

New York City of the U.S.A. It is the financial and commercial capital of the country, and was originally founded by Dutch settlers in 1621 and called New Amsterdam. Captured by the English in 1664 it was renamed New York after the Duke of York (James II.). It is situated at the mouth of the Hudson River, occupies an area of 305 sq. m. and has a population of 5,873,356. It has a magnificent harbour formed by the rivers Hudson and North, at the entrance to which stands the famous Statue of Liberty.

New York centres on Manhattan Island, but greater New York includes Brooklyn, Bronx, Richmond and other boroughs. Broadway, Wall Street and Fifth Avenue are famous thoroughfares; Bowery is the Jewish and Harlem the negro quarter. Ferries connect Manhattan Island with Brooklyn and Hoboken, and four great bridges cross the East River to Brooklyn. The city has also elevated and underground railways. Two railways, the New York Central and the Pennsylvania, have their termini here. The several airports include Curtis Field and Roosevelt Field, both on Long Island. The buildings are famous, including the Empire State Building (1000 ft.), the Chrysler and Woolworth Buildings, vast hotels and apartment houses, the cathedral of St. John the Divine and many well-known churches.

A cosmopolitan city, New York has many daily newspapers, printed in many languages. Its educational institutions include Columbia University and New York University, and there is a great public library. The Metropolitan Art Museum is one of the greatest in the world. There are over 130 hospitals. Amusements and theatres centre on Broadway, apart from Coney Island (q.v.). Central Park has 840 acres; Bronx Park contains the great New York Zoo, and the beautiful driveway of Riverside Park borders part of the bank of the Hudson. Long Island (q.v.) has a garden suburb.

New York City manufactures about a tenth of the nation's products, besides being a great importing and exporting centre and a great grain port. Wall Street is the financial centre, and the city has many great private banks and a Federal Reserve Bank.

The city is governed by a mayor, five borough presidents and 65 aldermen. The finance department has a controller at its head. It has two broadcasting stations, Brooklyn (54.52 M.) and Richmond Hill (46.02 M., 0.5 kW.). Pop. 6,930,446.

New Zealand Dominion of the British Empire. It is 1200 m. east of Australia, consisting of two large islands—North and South Islands—a small one—Stewart Island and several others. Discovered by Tasman in 1642 the coastline was explored by Captain Cook in 1769. It was ceded in 1840 by the Maori chiefs to the British Crown, becoming a colony. It became the Dominion of New Zealand in 1907. It is governed by a Legislative Council under a Governor-General appointed by the crown, and there is a House of Representatives with 80 members.

The country has a healthy temperate climate, is mountainous, and has numerous lakes and rivers, providing facilities for the generation of electricity. Numerous thermal springs and geysers exist and the country is famous for the variety and beauty of its scenery.

Having large areas of well-watered, fertile land, New Zealand is well settled and possesses many excellent towns. Agricultural and pastoral pursuits constitute the principal industries, but mining and working the forests are important. The Maoris are specially provided for and are now increasing.

The road and railway systems are extensive and there are many ports, facilitating the use of sea transport from almost all parts of the Dominion. Wellington is the capital but Auckland, also on North Island, is the largest city.

Area 103,285 sq. m. Pop. (Maori, 68,515) 1,513,416.

New Zealand Flax Perennial herb of the lily order, indigenous to New Zealand and Norfolk Island (*Phormium tenax*). Its sword-shaped leaves, 4-8 ft. long, 2-4 in. broad, yield a strong fibre used for binder twine and rope.

Next Friend In Great Britain a person who brings an action in a court of law on behalf of a minor or a person of unsound mind. As neither of these classes can take legal action, a next friend is essential. Such is usually a kinsman and must consent to his name being used.

Ney Michel. French soldier and Marshal of France. Born at Sarcelouis, the son of a cooper, Jan. 10, 1769, he enlisted in 1788, and distinguished himself at Jena, Eylau, and Friedland, and chiefly in the Russian campaign of 1812. As commander of the rearguard during the retreat from Moscow, he saved the remnants of the Grande Armée. Louis XVIII. made him peer of France, but, sent to oppose Napoleon on his return from Elba, he rejoined him, and fought bravely at Waterloo. At the second restoration he was condemned for high treason and shot, Dec. 7, 1815.

Niagara River, forming part of the boundary between Canada and the U.S.A. It flows from Lake Erie to Lake Ontario, and is 36 m. long. It is famous because about half of its 336 ft. of fall takes place at Niagara Falls (q.v.).

Niagara Town and pleasure resort of Ontario. It stands where the River Niagara falls into Lake Ontario. At one time it was called Newark, and was the capital of Ontario, or Upper Canada. Pop. 1400.

On the American side of the river is Fort Niagara, which was first built by the French in 1675 and was an important frontier port in the various wars down to the one of 1812-15.

Niagara Falls Waterfall on the Niagara River. North America. The river flows between the United States and Canada, and the Falls, perhaps the most celebrated in the world, are divided between the two countries. The American falls are 167 ft. high and are separated by Goat Island from the Canadian or Horseshoe Falls, which are 158 ft. high. The latter are 3100 ft. across, but the American falls are only 1080 ft. It is said that 100,000,000 cubic ft. of water pass over the falls in an hour. The fall is used to generate electric power, and there are treaties between the two countries to prevent the flow from being depleted. The water is gradually wearing away the rock so that the falls are moving slowly backwards at the rate of 6 ft. a year.

Niagara Falls City and river port of Ontario. It stands on the Niagara River, 82 m. from Toronto, and just below the Falls. It is served by the two main railway lines, C.N.R. and C.P.R., and also by American lines. An electric railway connects it with Toronto. Pop. 14,364.

The American city of **Niagara Falls** is on the other side of the river, 18 m. from Buffalo. It is a river port and has many manufactures and an enormous plant for generating electric power. Pop. 75,500.

Nibelungenlied German poem. It was composed about 1200 and tells of the deeds of the hero, Siegfried, and his wife, Sieglinde, other characters being Brunhilda and Gunther. The Nibelungs are a people to which some of the characters in the poem belong.

Nicaea City of Asia Minor. It was in Bithynia and was one of the capitals of that kingdom. It was founded in 318 B.C. by King Antigonus. Here, in 325, a famous church council was held. This condemned the teaching of Arius and formulated the creed called the Nicene. Arius and his opponent Athanasius both attended the council which also fixed the date of Easter.

The **Nicene Creed** is used to-day in the services of both the Roman and Anglican Churches and in the Orthodox Church of the East, though without the *filius* clause. In the Church of England it is repeated during the communion service. Its famous *filius* (also the son) clause, has been the cause of much controversy.

Nicaragua Republic of Central America. It lies south of Honduras, and stretches from the Pacific to the Caribbean Sea; area, 49,000 sq. m., pop. 638,119. Managua is the capital. Corinto and San Juan del Sur the principal Western ports.* On the E. are Bluefields and other ports, mainly interested in the fruit trade.

Nicaragua produces coffee, fruit, sugar and india-rubber. Mahogany grows in the forests, and among other minerals, gold and silver are mined.

Nice City of France. Situated on the Mediterranean Sea, it is the most important town in the department of Alpes

Maritimes. Founded over two thousand years ago, Nice was a busy seaport, frequently under different rule until 1860, since when it has been French. There are fine promenades, notably the Promenade des Anglais.* The commercial part lies to the east of the hill upon which the town is built. It is one of the most important towns on the French "Riviera," and is a fashionable winter resort for English people. The main industries are perfumery factories, distilleries, factories for silk, straw, leather goods and tobacco. Pop. 184,441.

Nicholas Name of five popes. Nicholas I., pope from 858-868, asserted the supremacy of the Roman curia, and restored her rights to Thietberga, the divorced wife of Lothaire, King of Lorraine.

Nicholas II. (1058-61) had Robert Guiscard as vassal. Nicholas V., born at Pisa in 1398, distinguished himself at the Councils of Basle and Florence and was elected Pope in 1447. By persuading the anti-pope Felix to abdicate, he procured peace for the Church in 1449. He founded the Vatican Library, and sent scholars far and wide to buy and copy Latin and Greek manuscripts. He tried to enlist the aid of Europe in the cause of the Greek Empire, but failed. He died in 1455.

Nicholas Patron saint of Russia, and of children, seafarers and merchants. Archbishop of Myra, Lycia, he attended the Council of Nicaea, 325. His remains were taken to Bari, Apulia, 1087. The pilgrimage then originated, which popularised his memory. Nearly 400 English churches bear his name. The widespread making of gifts on St. Nicholas Eve, afterwards transferred to Christmas Eve, accompanied early Dutch colonists to America, where the name was corrupted to Santa Claus. He is commemorated on Dec. 6.

Nicholas I. Tsar of Russia and son of Paul I. Born June 5, 1796, he succeeded his brother, Alexander I., as Emperor in 1825. He waged a successful war against the Persians in 1826 and increased his dominions. He suppressed a rising of the Poles in 1830 and strove to extinguish Polish nationality. In 1848, during the "Revolutionary Year," he assisted in quelling the Hungarian revolt against Austria. In 1855, in the Crimean War, Turkey, supported by the British and French, defeated Russia. Nicholas died during this campaign, Mar. 2, 1855.

Nicholas II. Tsar of Russia. Born May 18, 1868, he succeeded his father, Alexander III., in 1894. He formed an alliance with France and an entente with Great Britain. In 1899 he caused the first meeting of the International Peace Congress at the Hague. At home he refused the people a share in internal administration and opposed the growth of social democracy, but showed liberal leanings in establishing the Duma in 1905, at the end of the Russo-Japanese War of 1904-5. Early in the Great War he closed all liquor shops and, influenced by the Empress, who was dominated by Rasputin (*q.v.*), showed a reactionary tendency. The conduct of the war was mismanaged, and in March, 1917, he was forced to abdicate and was imprisoned. He was shot with his family at Ekaterinburg, July 16, 1918.

Nicholson John. British soldier. Born in Ireland, Dec. 11, 1821, he joined the East India Company in 1839, and saw service in Afghanistan. He did excellent work during the Sikh Rebellion of 1848 and was appointed Deputy-Commissioner of the Punjab

in 1851. During the Indian Mutiny he was responsible for the holding of the Punjab, and was mortally wounded at the siege of Delhi in the same year, Sept. 23, 1857.

Nickel Metallic element having the symbol Ni, atomic weight 58.69, and melting point between 1450 and 1660°C. Nickel is a white, lustrous metal having great hardness and tensile strength, but is malleable, ductile and magnetic. It is little affected by air and unattacked by alkalies, but is dissolved by mineral acids and after long contact by organic acids.

Nickel forms alloys with steel, copper and zinc, all of which are of great economic importance, and it may be deposited electrolytically on metals, constituting nickel plating. The chief nickel ores are pyrrhotine or magnetic pyrites from Canada and garnierite from New Caledonia.

Nicobar Group of Islands in the Bay of Bengal. They are 21 in number and cover 635 sq. m. The largest are Great Nicobar, Camorta and Car Nicobar. There is a good harbour at Nankauri and the chief product of the islands is coconuts. The islands became British in 1869 and are governed with the Andaman group, 75 m. to the N. Pop. 9300.

Nicomedia Ancient city of Asia Minor, now represented by Ismid. It was on the Sea of Marmora and was founded by a king of Bithynia, Nicomedes I., who made it the capital of his country. Diocletian made it his capital, and here Hannibal committed suicide.

Nicosia City and capital of Cyprus, also called Levkosia. It is 25 m. from the sea and still has traces of Venetian rule. The walls built then still stand. Its port is Larnaca. Nicosia was one of the centres of disturbance in the Cypriot rebellion of 1931. Pop. (1931) 23,507.

Nicotine Colourless volatile liquid alkaloid obtained from the leaves of the tobacco plant, *Nicotiana tabacum*. It has a strong disagreeable odour, is soluble in water and alcohol, and darkens with age. About 2 to 7 per cent. is present in tobacco, but the amount varies according to the kind, climatic and soil conditions, and cultural methods. Nicotine is highly poisonous, but being decomposed by burning is absent from tobacco smoke, whose harmful effects are due to the presence of carbon monoxide, pyridine and other substances. It is used also as an insecticide for plants in the form of a vaporising compound.

Nidd River of Yorkshire (W.R.). Rising on Great Wharfedale, it flows in a northerly direction past Pateley Bridge to the Ouse north of York.

Niemen River of Europe. It rises in Russia and flows through Lithuania to the Kurisches Haif, an opening of the Baltic Sea, which it enters by two mouths. Grodno and Kovno are on its banks and it is 660 m. long. It is navigable to Grodno and canals connect it with the Bober and the Vistula. The Lithuanians call it the Mersal.

Nietzsche Friedrich Wilhelm. German philosopher. Born at Roosen, Oct. 16, 1844, he studied at Bonn and Leipzig. He is the author of several philosophical works beginning in 1878, which have as their main theme a new doctrine of morality. Man should concentrate on the development of vital energy and develop into

a "superman," caring only for his own strength and advancement. This seemingly anti-Christian doctrine has been wrongly interpreted as meaning "Might is Right," and Nietzsche was long regarded by the world with horror. More recently, however, he has been recognised as a constructive, even religious, thinker, and only in part destructive. Nietzsche's mind failed 11 years before his death. He died Aug. 26, 1900.

Nieuport Town of Belgium in the province of W. Flanders. It is situated on the River Yser, and was the port of Ypres. In the Middle Ages it was strongly fortified, and was besieged by the French in 1488-89. It contains a cloth market, an old town hall and church, and a lighthouse dating from 1889. The locks of Palingbrug here drain the Low country, and in 1914 they were reversed, so that water flooded the front on the Yser, thus impeding the German invasion. Pop. 3016.

Nigella Name of the flower popularly called "Love-in-a-Mist." (q.v.)

Niger River of Africa. Parts of it, known before the complete course had been traced, were associated with the Nile and the Congo. Rising near Sierra Leone, it flows N.E. to Timbuctu, then E. and later, S.E., entering Nigeria where important tributaries join. It splits into a net-work of channels emptying through numerous mouths, scattered over 200 m. of coast, into the Gulf of Guinea. It is an important means of communication and transport in Nigeria. It is 2600 m. long.

Nigeria British Crown Colony and Protectorate in W. Africa, originating out of the trading depôts established as far back as the 17th century and later concerned with oil palm products. The north is inhabited principally by Mohammedan tribes, in the south pagans predominate. The tribes are largely governed through their chiefs. The people are agriculturalists and pastoralists, their surplus produce forming considerable exports. Tin and coal mining are established. A railway and motor roads have facilitated transport beyond the navigable reaches of the Niger. The extreme "damp heat" of the climate renders it very unhealthy for English people. Area, 335,700 sq. m. Pop. 18,750,000.

Nighthawk Insectivorous bird. Closely related to the goatsuckers, it has a wide skull, soft plumage, and can see at night, and fly noiselessly like the owl. It wanders from the Arctic Ocean to the south of South America, and lays its eggs on the ground or flat roofs.

Night Heron Widespread genus of birds of the heron tribe (*Nycticorax*), specially active in twilight and night hours. The common European species, 23 in. long, with greenish-black plumage and pale-straw underparts, bearing three long, thread-like, white plumes behind the head, visits Britain in spring and autumn.

Nightingale Bird of the thrush family (*Philomela lusciniæ*), ranging over Europe and N. Africa. Arriving in S.E. England about April 15, the males, 6½ in. long, with russet-brown plumage, greyish-white beneath, and bright rufous tail, utter their melodious song by night as well as day. The loosely built nest, placed in a thick hedge near the ground, shelters 4-5 olive-brown eggs, after whose hatching the

cock's song ends, and presently the departure southward for the winter quarters begins.

Nightingale Florence. English nurse and hospital reformer. Born May 19, 1820, after training as a nurse she went out during the Crimean War with a staff of 36 women to nurse the wounded. In four months the death-rate in the hospitals was reduced from 42 per cent. to 9 per cent. She made her hospitals efficient throughout, but still found time to go round the wards night with a lamp, comforting the sick. She became known as "The Lady of the Lamp."

She was responsible for the founding of hospital schools of nursing. In 1907 she was awarded the O.M. She died Aug. 13, 1910.

Nightjar Migratory swift-like bird (*Caprimulgus europaeus*), belonging to a numerous cosmopolitan subfamily. It breeds in Britain and Europe, spending the northern winter at the Cape. The male, 10½ in. long, has white-spotted rufous plumage. They make a churring note when beating for insect food, sometimes round the udders of goats and cattle; hence called goatsuckers.

Nightmare Oppressed state during sleep, accompanied by feelings of fear. The word perpetuates the ancient belief that the state is caused by an evil spirit. It is sometimes precipitated by stomachic disorder, but Freud's theory of dreams ascribes it to the emergence of repressed wishes from the subconscious into the conscious mind.

Nightshade Popular name of several species of British plants. The common nightshade, *Solanum nigrum*, bears black berries, occasionally red or yellow. The bitterweet or woody nightshade, *S. dulcamara*, bears scarlet berries. The deadly nightshade, *Atropa belladonna*, highly poisonous, bears black berries, cherry-sized. Enchanter's nightshade, *Circea luteliana*, bears tiny fruit.

Nihilism Term used in the 19th century for a movement in Russia whose adherents aimed at overturning the existing order. The Nihilists were responsible for the murder of the tsar, Alexander II., in 1881, and for other outrages.

Nijmegen Town of Holland, in the province of Gelderland. It is a railway junction, and has manufactures of pottery, brewing, leather, etc. Pop. 66,899.

The Treaty of Nijmegen was signed on Aug. 11, 1678, and concluded the war between France and the Dutch, Spanish and Imperial coalition.

Nijni-Novgorod Government and city of central Russia. The province has an area of 19,797 sq. m. and a population of about 2 millions. The city, which is the capital of the province, lies at the confluence of the Volga and the Oka and is a great commercial centre. It has an annual fair which is held from July 25 to Sept. 10. There is trade in metals, cereals and fish. In 1918 a university was opened here. It has two broadcasting stations (761.4 M., 1.5 kW., and 500.8 M.). Pop. 185,274.

Nike Greek goddess of victory, called by the Romans, Victoria. Daughter of the giant Pallas, she aided Zeus in his struggle with the Titans, and was raised to Olympus. She was represented as a winged figure, wreathed or palm-bearing, sometimes

guiding victors' steeds. The Roman Victoria bore a shield or wand.

Nile River of Africa. Rising in the Victoria Nyanza, 3900 ft. above sea-level, it flows north-west, then north into the Sudan, as the White Nile, being joined by the Blue Nile at Khartum. Between Khartum and Aswan there are six cataracts, but the river is navigable from above Khartum. Below Cairo the river, which is 4000 m. long, divides into a delta of 8500 sq. m. Alexandria is at one of the mouths.

The Nile is the source of Egyptian prosperity, which depends entirely on the extent of the annual inundation. Irrigation has been practised since 1842, when the Cairo barrage was built. The Assuan Dam, completed in 1902 and heightened in 1912, conserves the river water for 200 miles. There is another barrage at Assiut, and the dam at Sennar on the Blue Nile has brought 300,000 acres under fresh cultivation.

Nile Battle of the. Naval engagement. It was fought Aug. 1, 1798, in Aboukir Bay between the British and French fleets. The French ships were anchored in the bay, to support Napoleon, who had landed in Egypt. They were found by Nelson, who attacked them, and won a conspicuous victory. The French lost 13 ships out of 17 engaged.

Nilgai Kind of antelope (*Roselaphus traucamylus*). It is found in the lowland district of India. It is fairly large, standing as high as 5 ft. The horns of the male are short and straight. In colour the animal is brown or brownish grey.

Nilgiri Range of hills in India. They are in the Deccan, to the S. of Mysore. The highest peak, Doddabetta, is nearly 9000 ft. high; others are over 8000 ft. Places in the hills are visited by Europeans during the hot weather. The name means "blue mountains."

Nilsson Christine. Swedish singer. Born at Wederslöf, Sweden. Aug. 20, 1843, of poor parents, she studied singing at Paris, where she made her début at the Théâtre Lyrique in 1864 as Violetta. She appeared in London as leading prima donna, in 1867, and went to America in 1870. After her marriage in 1872, her appearances were rare, and ceased altogether after her second marriage in 1887. She died Nov. 22, 1921.

Nimbus Term in art for a form of halo surrounding the head of a saint or divine personage. It is of ancient origin, occurring in Greek and Buddhist art and adopted as a Christian symbol for saintliness in square, rectangular or circular form.

Nimes A city of S. France, the capital of the Gard Department, which has a population of 74,102. It was founded and built by the Romans, who built its great amphitheatre, a temple known as the Maison Carrée and the famous aqueduct, the Pont du Gard.

Nimes lies at the foot of the Garrigue Hills, and overlooks the plain of the Vistre, which is rich in vineyards. It is an important market for wine and brandy, and its chief industry is the manufacture of silk. It has a broadcasting station (237.2 M., 1 kW.).

Nimrod Son of Cush, "a mighty one of the earth," and the founder of Babel (Gen. x.). A mighty hunter and warrior, his name is used as a symbol for any great hunter.

Nineveh City of Assyria. Situated on the left Tigris bank opposite

Mosul, 275 m. N.N.W. of Babylon, it occupied a walled enclosure of 1800 acres. Metal-using peoples displaced an earlier neolithic population (Gen. x.). After centuries of political activity under Hammurabi and later monarchs it became the royal capital, especially under Sennacherib and Ashurbanipal, whose cuneiform library and massive monumental remains, excavated by Sir H. Layard (q.v.), are in the British Museum. The Medes, aided by Nabopolassar, King of Babylon, brought about its fall, 612 B.C.

Ningpo City and port of China. It stands on the River Yang, 16 m. from its mouth, and 95 m. from Hangchow. There are some manufactures and a considerable trade. Since 1842 Ningpo has been open to foreign trade. Pop. 212,000.

Ninian Saint. Apostle of Christianity in N. Britain. Of Welsh birth, and trained in Rome, he was consecrated bishop. Founding at Whitford, on Wigton Bay, a church dedicated to S. Martin of Tours, about 397, he evangelised the S. Picts up to the Grampians. He is commemorated on Sept. 16. He died about 432.

Niobë In Greek mythology, wife of Amphion, King of Thebes. Taunting Leto with having borne only two children, Apollo and Artemis, whereas she herself had twelve, her six sons fell to Apollo's darts, her daughters to those of Artemis. Niobë became a stone shedding incessant tears, a fruitful theme in ancient art.

Niobium A rare metallic element having the symbol Nb, atomic weight 93.1, and colour steel-grey. Discovered by Hatchett in 1801 in the mineral columbite from which the metal receives its alternative name of "columbium." It is associated also with tantalum, uranium and yttrium in other rare minerals.

Nipissing Lake of Ontario. Covering 330 sq. m., it is 50 m. long and contains many islands. It is connected by the French River with Lake Huron. The district around, which is rich in minerals, is called the Nipissing district.

Nippon Variant of the native name for Japan (q.v.).

Nippur Ancient city of Sumeria. About 100 m. to the S. E. of Bagdad, it was a large and flourishing city and a centre of the worship of the Sumerian god Enlil. It was later a city of Assyria and a residence of the kings of Parthia. The site was excavated between 1889-1900.

Nish Town of Yugoslavia. A departmental capital 130 m. S.E. of Belgrade, on the Nisava tributary of the Morava, it is an important railway junction, second only in strategic and commercial eminence to Belgrade. It was Constantine the Great's birthplace. Captured by Bulgaria, 1915, it was recovered by Serbia, 1918. Pop. 25,000.

Nith River of Scotland. It rises in Ayrshire and passes through Dumfriesshire to the Solway Firth, flowing through a beautiful valley called Nithsdale.

The title of Earl of Nithsdale was held by the border family of Maxwell until 1715. William, the 5th earl, a Jacobite, was taken prisoner at the Battle of Preston and condemned to death. He escaped, however, from the Tower of London, owing to the skill and devotion of his wife. He died March 20, 1744, his title having been taken from him in 1715.

Nitre Common name for potassium nitrate or saltpetre which occurs in nature as a white incrustation or as crystals in the porous soil in many parts of the world. Commercial nitre is prepared chiefly from nitrate of soda or Chilean saltpetre which occurs over a wide area in S. America as an impure saline incrustation or "caliche." Nitre is used in the preparation of gunpowder, for salting meat and in medicine. Nitre cake is a trade term for the refuse nitre from the manufacture of nitric acid.

Nitric Acid Compound of nitrogen with hydrogen and oxygen, commonly known as aqua fortis. It is a colourless fuming liquid when pure, but is yellowish in its commercial form, and is very corrosive, acting upon organic matter and many metals, but not upon gold or platinum. It is prepared by heating Chile saltpetre with sulphuric acid in retorts, or by oxidation of atmospheric nitrogen by means of the electric arc. It is used in the manufacture of dyestuffs, explosives, etc.

Nitrification Process by which nitrates are formed in the soil and decaying organic matter by the action of bacteria and other micro-organisms. These nitrifying organisms convert the proteids in the soil into ammonium carbonate, then into nitrites and finally into nitrates, these changes take place in the presence of lime or other basic substances, moisture and freely circulating air. Free atmospheric nitrogen in the soil also is fixed by bacteria present in the root tubercles of leguminous plants.

Nitrobenzol Derivative of benzol or benzene. It is known also as essence of mirbane and is used largely as a substitute for the natural oil of almonds in the perfuming of soap. It is employed also in the production of aniline and a number of important intermediate dyestuffs. Nitrobenzol is prepared by treating benzene with a mixture of strong nitric and sulphuric acids, and is a yellowish liquid having a strong odour of oil of bitter almonds.

Nitrogen Gaseous element having the symbol N and atomic weight 14.008. It forms four-fifths by volume of the atmosphere and occurs in nature in the form of nitrates, also as a constituent of many animal and vegetable compounds. It is a colourless, odourless, tasteless and inert gas which does not support combustion or animal life. It is prepared commercially chiefly from ammonia or by distillation methods from the air, and from atmospheric nitrogen many compounds are now being made.

Nitroglycerin Explosive substance prepared by treating glycerin with a mixture of cold concentrated nitric and sulphuric acids. It is a colourless or pale-yellow oily liquid, insoluble in water; and, while burning harmlessly in an open vessel, explodes violently by concussion or when quickly heated. It is a valuable medicine in the treatment of angina pectoris, Bright's disease and other diseases, for this purpose being often given in a fatty or oily solution and in tablet form when it is quite safe and stable. Its chief use, however, is as an ingredient of cordite, dynamite and other high explosives.

Nivelle Robert George. French general. Born at Tulle, Corrèze, Oct. 15, 1856. After service in China and Algeria, he was appointed General of Brigade in 1914, and fought successfully on the Alsace. In

March 1916, he successfully and gloriously held Verdun against the German Crown Prince, and is famous for his unforgettable words, "Ils ne passeront pas." As commander-in-chief in 1916 he failed and was succeeded by General Pétain (q.v.). He took over the French troops in N. Africa in 1917. He was a member of the Supreme War Council in 1920, and represented France at the Tercentenary of the Mayflower in America (1921). He died Oct. 11, 1924.

Nizam Title of the ruler of Hyderabad, India. It comes from an Arabic word meaning "administration."

Noah Old Testament patriarch. Son of Lamech, and father of Shem, Ham and Japheth, he built the Ark in which he, his family and some representative animals were saved from the Flood. After its subsidence he became the ancestor of all mankind. Another legend claims him as the first to cultivate the vine (Gen. v.-x.). See DELUGE.

Nobel Alfred Bernhard. Swedish chemist and inventor of dynamite. He was born at Stockholm, Oct. 21, 1833. His father had manufactured nitroglycerin, and the son continued research in explosives, inventing also blasting jelly and smokeless powder. He died Dec. 10, 1896.

NOBEL PRIZE. On his death Nobel left a fortune of £2,000,000, most of which he ordered to be used to found the five Nobel prizes which are awarded annually for the most important discoveries and works for the benefit of humanity in physics, chemistry, medicine, literature and the furtherance of peace in the world. A Nobel Prize for literature was awarded to Rudyard Kipling in 1907, to W. B. Yeats in 1923 and to Bernard Shaw in 1925. Other British prize-winners have been Sir J. J. Thomson (physics); Sir Ernest (now Lord) Rutherford (chemistry); Sir Ronald Ross (medicine); and Sir Auston Chamberlain (peace).

Nobile Umberto. Italian explorer. He was born at Arellino in 1885. In 1926, together with Amundsen, he successfully carried out a polar expedition on the airship *Norge*. In May, 1928, he passed over the Pole in the dirigible *Italia*, but crashed shortly afterwards. He was rescued with some of his crew a month later by a Swedish search party, but Amundsen and others lost their lives in the search.

Nocturne Dreamy, musical composition, suggestive of night, introduced by Field and perfected by Chopin, as pianoforte literature. Mozart's "Notturmo" is a piece in three movements for horns and strings, and that of Mendelssohn (in *A Midsummer Night's Dream*), truly an Intermezzo.

Node Astronomical term for the place where the orbit of the moon or a planet intersects the plane of the ecliptic. The position where the planet passes from S. to N. of the ecliptic is the ascending node, and where it passes from N. to S. the descending node.

Noel-Buxton Lord. English politician. A son of Sir T. Fowell Buxton, Edward Noel Buxton was born in 1869 and educated at Eton and Trinity College, Cambridge. He devoted his time to public affairs and spent some years in Greece and the Balkans. In 1905-06 he was a Liberal M.P., as he was from 1910-13. In 1922, having joined the Labour Party, he was again sent to Parliament for N. Norfolk, his old constituency. In 1924 he was Minister

of Agriculture and he returned to that office in 1929. In 1930 he resigned his office and was made a peer.

Nomad Member of a tribe or community who roam from place to place for their subsistence. They may be hunters, e.g., Australian blackfellows, S. African bushmen or quasi-industrial gipsy vandwellers. Nomadism especially characterises pastoral tent-dwellers on grasslands and steppes who follow their flocks and herds from summer-pastures to winter-pastures.

Nome Town in N.W. Alaska. It is situated on Norton Sound, 13 m. W. of Cape Norton. On the discovery of gold in 1899 it became the centre of a famous mining area, but its population, which in 1900 was 12,500, had decreased in 1930 to 1200.

Nonconformity Dissent from the practices and doctrines of the Established Church. In Great Britain the first secession was made in 1563 by the Puritans, whose influence was increased by the misgovernment of the early Stuarts. After the restoration, however, they suffered severe penalties under the Act of Uniformity (1662), the Conventicle Act (1664), the Five Mile Act (1665), and the Corporation Act (1661). Some disabilities thus inflicted were not removed till the Toleration Act was passed (1689) after the accession of William and Mary. But the movement, which included Baptists, Independents and Presbyterians, received fresh strength about 1760 through the secession of the Methodists. In 1892 the National Council of the Evangelical Free Churches was established to protect the rights of the Nonconformists. Recently movements have taken place in the direction of closer unity between the various Free Churches.

Nonjuror One who refuses to take an oath of allegiance. It applies particularly to the bishops, clergymen and others who, for conscience sake, declined to take the oath to William and Mary in 1689. They were therefore deprived of their offices. They included William Sancroft, Archbishop of Canterbury; Thomas Ken; Jeremy Collier; William Law; and about 400 others. They formed a church of their own under their own bishops.

Nonpareil Name of a size of printing type. It is between minion and pica and is sometimes called six point. Twelve lines go to the inch.

Non sequitur In logic a conclusion that is incorrectly drawn, or does not follow from the premises. They are very common in ordinary life. A man argues "gales cause slates to become loose; a slate on my house has become loose, therefore it was caused by a gale." Logicians say this false assumption is due to an undistributed middle term, the middle term here being gales.

Norbiton Urban district of Surrey. It is 12 m. from London, on the S. Ry. Pop. (1931), 12,652.

Norbury District of London in the county of Surrey. It is 7 m. from the city, just outside the boundary of the county of London, and has a station on the S. Ry.

Norbury in Derbyshire, 7 m. from Uttoxeter, has a church with memorials of the Fitzherbert family, and a station on the L.M.S. Ry. Pop. (1931), 365.

The Irish title of Earl of Norbury has been

buried since 1827 by the family of Toler. The 1st earl, John Toler, was a successful Irish lawyer.

Nordenskiöld Baron Nils Adolf Erik. Swedish explorer. Born at Helsingfors, Nov. 18, 1832, he began his exploration and topographical research at Spitzbergen in 1864. In 1879 he discovered and navigated the N.E. passage from the Atlantic to the Pacific along the N. coast of Asia. As a reward he was made Baron of Sweden (1880). He later made two expeditions to Greenland. He published several books giving accounts of his exploration and scientific work, notably *The Voyage of the Vega* (1881). He died Aug. 12, 1901.

Nore River of the Irish Free State. It rises in the northern part of Co. Tipperary and flows S.E. through Leix Co. and Co. Kilkenny until it falls into the River Barrow just above New Ross. It is 70 m. in length.

Nore Sandbank at the N. of the Thames. It is 3 m. from Sheerness and is considered to be the mouth of the Thames. It has a lightship and is famous for the mutiny in the navy that took place here in 1797.

Norfolk County of England. It lies on the E. coast, with an extensive coastline, and is the fourth largest of the counties. Area 2119 sq. m. It is mainly agricultural, while there is a flourishing fishing industry on the coast, centering in Yarmouth. Much stock is raised and Norfolk red polls are a well-known breed of cattle. Norwich is the capital, and Yarmouth is another large town. There are some popular watering places, among them Cromer, Sheringham, Hunstanton and Mundesley. It was the centre of a vigorous woollen and silk trade from the 12th century when the Flemings established themselves in the county. It sends five members to Parliament. Pop. (1931) 504,293.

Norfolk City of Virginia, U.S.A. It is situated on Elizabeth River and is an important port. Its industries include coffee-roasting, cotton and silk goods, fertilisers, tobacco and cigars. The shipping trade is extensive. Pop. 115,777.

Norfolk Island in the Pacific Ocean. It is 900 m. from Sydney and was discovered in 1774 by Captain Cook. It covers about 14 sq. m. and on it fruit is grown. In 1856 the descendants of the mutineers of the Bounty were brought here from Pitcairn Island. Since 1914 it has been part of the Commonwealth of Australia, being governed by New South Wales. It is the headquarters of the Melanesian Mission. Pop. 1000.

Norfolk Dukes of. English title held since 1483 by the family of Howard. It is the senior dukedom in the peerage.

In 1312 Thomas of Brotherton was granted the earldom of Norfolk. After his death his daughter was created Duchess of Norfolk, and her grandson Thomas Mowbray, became the first Duke of Norfolk in 1397. He tried to lessen the power of Richard II., and was banished from England and attainted, nor was his son, Thomas (1325-1405) allowed to resume the title. In 1425 John Mowbray (1415-61), brother of Thomas, regained the dukedom, which became extinct at the death of his son-in-law Richard in 1483.

It was then granted to John Howard (1430-85), a member of the powerful Howard family. John lost the title because of his support of

Richard III., but it was restored to his son, Thomas (1443-1524) after his defeat of the Scots at Flodden, 1513. Thomas Howard, 3rd duke (1473-1554), served Henry VIII. in opposition to Wolsey. When Catherine Howard, his niece, was executed, he was accused of treason and remained in prison during the reign of Edward VI., only regaining his dukedom in 1553. Thomas Howard, 4th duke (1536-72) intrigued with Spain so that he might marry Mary, Queen of Scots, but this was discovered and he was beheaded. The dukedom was restored in 1660, and bestowed on Thomas Howard (1622-77), 4th Earl of Arundel.

Later dukes were Charles Howard, 11th duke (1746-1815), an important Whig; Henry Charles Howard, 13th duke (1791-1856), a Roman Catholic, who, as a member of the House of Commons, did much to further Roman Catholic education. Henry Fitzalan Howard, 14th duke (1847-1917), was Postmaster-General, 1895-1900. The first Lord Mayor of Sheffield, he served in the South African War, and as the head of the Roman Catholics in England was a notable figure in public affairs.

Norfolk Thomas Howard, 3rd Duke of. English nobleman and soldier. Born in 1473, he became Lord High Admiral in 1513, and in 1514 led the English Army against the Scots at Flodden. He was created Earl of Surrey the same year. He went to Ireland as Lord-Deputy, and then pillaged the coast of France, and the Scottish Border.

He succeeded his father in 1524, and with this added prestige led the anti-Wolsey party. He favoured the marriage of Anne Boleyn to Henry VIII., and in spite of her execution, remained in favour. He put down the rising known as the "Pilgrimage of Grace," in 1536, and led armies in France and Scotland. He was put in prison for his share in his son's treason in 1547, and kept there till 1553, when his position was restored. He tried unsuccessfully to suppress the rebellion under Sir Thomas Wyatt, and died on Aug. 25, 1554.

Norham Village of Northumberland. It is 8 m. from Berwick-on-Tweed, and 340 m. from London by the L.N.E. Rly. It is visited for its castle, which, mentioned in *Marmion*, was a border fortress belonging to the Bishop of Durham. It is the centre of a small district called Northamshire, which was part of the county of Durham until 1844.

Norman Inhabitant of Normandy. The Normans were really Northmen who settled in the northern part of France, and also in Italy and Sicily where they have left extensive traces of their presence and where they developed a somewhat remarkable civilisation. In 1066 there was a Norman invasion of England in which William, Duke of Normandy, known as "William the Conqueror," overcame the Saxons and ruled England.

The form of architecture called Norman preceded the Gothic. It is distinguished by the rounded arch and to it belong some of the oldest buildings in England.

Norman Montagu Collet. British financier. He was born in 1871 and educated at Eton and King's College, Cambridge. He served with distinction in the Boer War, and was awarded the D.S.O. He became governor of the Bank of England in 1920, and a member of the Privy Council in 1923.

Normanby Village of Yorkshire (N.R.) It is 5 m. W. of Pickering. From here the family of Phipps takes the title

of marquees, given to the 2nd Earl of Mulgrave in 1838. The family seat is Mulgrave Castle, near Whitby, where the marquees conducts a private school.

Normandy District of France formerly a province. In the north of the country, Normandy is now divided into the departments of Seine Inférieure, Eure, Orne, Calvados, and Manche. It was taken by Rollo and his Norsemen in 912, and was an English possession from 1066, but was lost finally in 1449. The chief towns are Rouen, the capital, Dieppe, Havre, Caen, Bayeux, Cherbourg and Mont-St.-Michel.

The ground is fertile, producing corn, hemp, flax and fruit (chiefly cider-apples). There is iron near Caen. It has large fisheries, and sheep and dairy-farming in the interior.

Normanton Urban district and market town of Yorkshire (W.R.). It is 10 m. from Leeds on the River Calder and is a junction for the L.M.S. and L.N.E. Rlys. The industries include coal mines and chemical works. Pop. (1931) 15,884.

Norn In northern mythology, a divinity of fate. Three are usually reckoned, two of them kindly, one malignant; they controlled human destiny in the manner of the classical Fates (q.v.). In some forms of the myth they are called Past, Present and Future, dwelling beside the well of fate by the world-ash, Yggdrasil.

Norse Adjective preferably denoting the old language of Norway. Pertaining to the N. Germanic group of Indo-European languages, it was carried in the Viking age to Iceland where, down to the 15th century, it became enshrined in imperishable sagas. It also reached Greenland, the islands of N. Britain and remote parts of Scotland, especially Caithness, surviving in Orkney and Shetland down to the 18th century. The word also denotes synonymously all the early Scandinavian civilisation.

Northallerton Urban district and market town of Yorkshire (W.R.). It is 30 m. from York on the L.N.E. Rly. The chief town of the north riding, its industries include brewing and malting and some manufactures. The Battle of the Standard (q.v.) was fought near here in 1138. Pop. (1931) 4787.

Northam Market town and urban district of Devonshire. It stands on the Torridge about a mile from Bideford, and includes the watering place, Westward Ho! There are golf links on Northam Barrows. Pop. (1931), 5561.

Another Northam is a district in the city of Southampton, on the S. Rly. Pop. (1931) 11,594.

North America Term applied to the whole of the northern portion of the American continent, including the United States, Canada, Alaska, Newfoundland and Mexico. It has an area of some 8,200,000 sq. m., the length being approximately 5600 and the breadth varying from 200 to 3000 m. Pop. 138,000,000 (approx.).

The chief physical features are the Laurentian Plateau in the north of Canada, the hilly Appalachian area from Newfoundland to Alabama, the western highland which include the Rocky Mts., and the vast central plains or prairies. Important rivers are the Mississippi, St. Lawrence, Mackenzie, Columbia, Colorado, Hudson, and others.

It is an area of great fertility and considerable mineral wealth. Gold is plentiful in many districts; oil, coal, iron and most of the essential minerals are also found here. Fur-bearing animals are a source of considerable wealth, and large stretches of country have such rich soil that agriculture is a profitable industry.

The original inhabitants were the American-Indians of different tribes. These have tended to decrease until quite recent years when some increase in the Indian population has been observed. The history of the continent starts with its discovery by Christopher Columbus in 1492, though earlier voyagers had undoubtedly sighted parts of it, and there had been European settlers in Greenland.

Northampton County town of Northampton, England, 66 m. N.W. of London. The town is situated on the River Nene. Famous for the manufacture of shoes it has also tanning and textile works, breweries, iron foundries, brick works and an extensive cattle market. Both early British and Roman remains are found. In the 6th century it was the chief settlement of the Angles, and in the time of Edward the Elder was occupied by the Danes. Its charter was granted in 1460. S. Sepulchre's, one of England's four round churches, was built by the Templars, and S. Giles' and S. Peter's are both ancient. It played an important part in the Wars of the Roses and in the Civil War.

Northampton Marquess of. A title borne by the Parr family, the most important of whom was William, who was born in 1513, and was the brother of Catherine Parr, 6th wife of Henry VIII. He was created Earl of Essex in 1543, and Marquess of Northampton four years later. During the reign of Edward VI., he supported the cause of Somerset and Northumberland, and after Edward's death favoured the accession of Lady Jane Grey. For this he was sentenced to death, but the sentence was reduced to forfeiture of his title and estates. On the accession of Elizabeth, however, he returned to favour, and was again created marquess in 1559. He died on Oct. 28, 1571.

The second Marquess was Spencer Joshua Alwyne Compton, who received the title in 1812. He was a distinguished politician and man of letters, who assisted Wilberforce in the cause of negro emancipation and held the office of President of the British Association. The present Marquis (William Bingham Compton) succeeded in 1913. His heir, Edward Robert Compton, was born in 1891.

Northamptonshire County of England. In the E. of the country, it covers 998 sq. m. Northampton is the county town; other places of importance are Peterborough, Kettering, Wellingborough and Higham Ferrers. The chief rivers are the Welland, Nene and Great Ouse. Places of interest are Burghley House and Althorp, and there are remains of the forests of Whittlebury and Rookingham. Northamptonshire is a hunting county and a first-class county in cricket. It is in the diocese of Peterborough, and has two county councils, the county proper and the soke of Peterborough. Pop. (1931) 307,428.

The Northamptonshire Regiment was formerly the 48th and 58th of the line. The former was raised in 1741 and the latter in 1755. The depot is at Northampton.

North Bay Town and pleasure resort of Ontario. In the N. of the province, it is on Lake Nipissing, 360 m. from Montreal and 190 from Toronto, by the C.N.R. and C.P.R., and also by the Temiskaming and Northern Ontario Rly., and is the centre of a mining district. There are some manufactures. Pop. 10,692.

North Berwick Burgh and seaside resort of East Lothian. It is 23 m. E. of Edinburgh by the L.N.E. Rly. and is situated on the Firth of Forth. It is a famous golfing centre, and here is Tantallon Castle. Pop. (1931), 3,473.

Northbrook Earl of. British statesman. Born Jan. 22, 1826, Thomas George Baring was the son of Francis Thornhill Baring, First Lord Northbrook. The father had held several successive posts in Whig ministries, and the son was in turn Lord of the Admiralty, Under-Secretary for India, Under-Secretary for War, Governor-General of India (1872-1878), and First Lord of the Admiralty. After his term of office as Governor-General in India he was created an earl (1876). He died Nov. 15, 1904, being succeeded by his son, Francis George.

Northcliffe Viscount. English journalist. Alfred Charles William Harmsworth was born in Dublin, July 15, 1865, the eldest son of Alfred Harmsworth, a barrister. In 1880 he entered a newspaper office, and in 1882 he was made assistant editor of a journal called *Forth*. In 1885 he went to Coventry and here he worked on papers owned by Messrs Illife & Sons, returning later to London to serve in the office of Sir George Newnes.

In 1888 Harmsworth founded a weekly paper called *Answers*, which soon proved a success. Other papers were started and the foundation was laid of the great publishing business now known as The Amalgamated Press. After some years of success in launching weekly publications, he and his brother Harold bought, in 1894, *The Evening News*, a London daily paper. In 1896 they founded *The Daily Mail*, a half-penny daily paper, the first issue appearing on May 4.

For the next 25 years Harmsworth was the most influential newspaper proprietor in the country. Continually acquiring new interests, he founded *The Daily Mirror* in 1903 and in 1905 bought *The Observer*. In 1908 he became chief proprietor of *The Times*. In 1911 he sold *The Observer* and later *The Daily Mirror*, but he kept control of *The Daily Mail* and *The Times* to the end.

In 1895 Harmsworth stood unsuccessfully for Parliament for Portsmouth. In 1904 he was created a baronet and in 1905 Baron Northcliffe. He took a great interest in motoring, and by the prizes he offered did a great deal to encourage aviation. He also financed an expedition to the North Pole. In 1914, on the outbreak of the Great War, he devoted all his energies to the furtherance of the cause of the Allies, and was continually urging more vigorous measures. In 1917 he went to the United States as head of the British mission and on his return was made a viscount. In 1918, having declined the office of Minister for Air, he became director of propaganda in enemy countries. He died at his residence in Thanet, Aug. 14, 1922. His widow, who married Sir Robert Hudson in 1923, was Mary Elizabeth, daughter of Robert Milner. He left no children, and his title died with him.

North-East Passage Route through the Arctic Ocean from Europe to the Pacific Ocean. In the 16th century and later several navigators tried to find it, but not one of them succeeded until 1878-79. In those years A. E. Nordenskiöld made the full voyage.

Northern Ireland Part of the United Kingdom of Great Britain and Northern Ireland. Under the Government of Ireland Act, 1920, Northern Ireland consists of the six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone, with the two cities of Londonderry and Belfast, the capital. Its constitution is federal in type, certain powers being reserved to the Imperial Parliament. The Northern Irish Parliament has a House of Commons of 52 elected members, and a Senate of 26 senators. The executive power is vested in the Governor, now (1932) Lord Abercrombie, who was elected in 1928 for a further term of six years. The principal industries are linen manufacture, shipbuilding (Belfast being the chief industrial centre), and agriculture. Roughly a third of Northern Ireland's total acreage (3,351,444) is under cultivation, the chief crops being oats, potatoes, flax and hay. Of the total population (1½ millions) there is a Catholic and Nationalist minority of 420,000.

Northern Territory Part of the Commonwealth of Australia, on the N. coast between Queensland and W. Australia and extending to S. Australia, lying almost entirely within the tropics. A central plateau, with grassy areas, slopes gradually to the low coastline. Farther south the Territory is sandy and dry. Some cattle are raised but little development has taken place. The capital is Port Darwin, the area, 523,620 sq. m. Pop.—native, 20,000; others, 37,000.

Northern Union League or association to control a game of football that has developed from the Rugby game. The clubs belonging to it are composed of professionals and are chiefly in Lancashire and Yorkshire. The union came into existence in 1895 when the Rugby Union refused to allow professionalism. The number of players is 10 a side, and there is no line-out. Six players form the scrum. The clubs form leagues to play matches for a championship against one another.

Northfleet Urban district of Kent. It is 2½ m. from London by the S. Rly., and stands on the Thames just above Gravesend. Here are paper mills, and also chemical and cement works. Pop. (1931), 16,429.

North Foreland Chalk headland on the E. coast of Kent, about 1½ m. N. of Broadstairs. It forms the N.E. corner of the Isle of Thanet, and has a lighthouse whose light is visible 20 m. away.

North Island Northern of the two chief islands of New Zealand. It covers 44,131 sq. m., and the chief cities therein are Auckland and Wellington. It is divided into four provincial districts—Auckland, Hawkes Bay, Wellington and Taranaki. It is famous for its sheep, and its warm climate is very suitable for the growing of fruit. See NEW ZEALAND.

North Pole Northern terminus of the axis of the earth. It is at a latitude 90° N and is in the Arctic regions.

Attempts to reach the pole failed until April 6, 1909, when Robert E. Peary (*q.v.*) reached it. Since then it has been reached by other explorers, while some of them have flown over it.

North Sea Sea bounded by Norway and Denmark on the E., England on the W., Germany and the Netherlands on the S. and the Arctic Ocean on the N. It is part of the continental shelf on which the British Isles stand. It is shallow, averaging about 60 fathoms, and slopes from N. to S. It is a rich fishing ground, the fish being attracted thither by the organisms with which it abounds. The most productive fisheries are the Dogger Bank in winter and the Continental coasts in summer.

North Sydney Seaport of Nova Scotia. It is on an arm of Sydney Harbour, 18 m. from Sydney, by the C.N. Rly. Around are coal mines, and from here coal is exported. Fishing and tanning are other industries, and it is a centre for the trade with Newfoundland. Pop. 6385.

Northumberland Most northerly county of England. Separated from Scotland by the Cheviot Hills and the Tweed, it has a coastline on the North Sea. Newcastle-upon-Tyne is the county town, other towns being Alnwick, Berwick-on-Tweed, Wallsend and Hexham. The county is rich in coal and contains large industrial areas centering largely on the Tyne, where are iron-works, blast-furnaces, shipbuilding yards and factories producing glass, electrical goods, pottery and machinery. Barley and oats are the chief agricultural crops, but sheep-rearing is the most important form of agriculture. Three members are returned to Parliament.

The county has considerable Roman remains, including Hadrian's Wall. The abbey of Hexham and Lindisfarne are famous, as are the castles of Alnwick and Warkworth.

Northumberland Duke of. English title held by the family of Percy. In 1377 Henry Percy was made Earl of Northumberland and the title was held by his descendants until 1670 when it became extinct. Concurrently from 1551 to 1553 John Dudley was Duke of Northumberland. In 1683 George, a natural son of Charles II., was made Duke of Northumberland, but he died without heirs in 1716.

In 1749 Algernon Seymour, 7th Duke of Somerset, who had married the heiress of the Percies, was made the Earl of Northumberland. His son-in-law, Sir Hugh Smithson, succeeded, by special arrangement, to his title taking the name Percy. In 1766 he was made a duke and the present duke is his descendant Alan, 8th duke, who died in 1930, was one of the proprietors of *The Morning Post*. The duke's chief seat is Alnwick Castle and his estates are in Northumberland. His eldest son is called Earl Percy.

Northumbria Name of one of the kingdoms of England in Anglo-Saxon times. It consisted of two smaller kingdoms, Bernicia and Deira, and came into existence about 600. For a time it was the strongest of the English kingdoms, but in less than a century it was subordinate to Mercia or Wessex. Its kings, however, remained until about 900. Later it was one of the great earldoms and was ruled for a time by Tostig.

North Walsham Market town and urban district of

Norfolk. It is 14 m. from Norwich, and 131 from London, by the L.N.E. Rly. and a joint line. The Paston Grammar School is associated with Nelson. Pop. (1931), 4137.

North-West Frontier Province. Most northerly district of British India. It is situated roughly north of Baluchistan, between the Indus and Afghanistan. The capital is Peshawar, which, except for Dera Ismail Khan, is the only town of note in a province which is mainly agricultural. The inhabitants are mostly Pathans, Mohammedans in religion, and speaking the Pushtu language. The province was created on Oct. 25, 1901. Its area is 13,419 sq. m. and its population (1931) 2,425,076.

North-West Passage Route from the Atlantic through the Arctic round the north coast of Asia to the Pacific. Its discovery was the object of many British explorers. In 1714 Parliament offered a reward of £20,000 to the first discoverer of the Passage. It was in the attempt to find this route that Sir Benjamin Franklin and his associates perished in 1845. Sir Robert McClure succeeded in the voyage which began in 1850, and A. E. Nordenskiöld in 1878-79.

North-West Territories Administrative district of Canada. Originally Rupert's Land and the North-West Territory, it was purchased from the Hudson's Bay Co. in 1867 by the Dominion Government. Diminished in size by the formation of Manitoba (1870) and Saskatchewan and Alberta (1905), it now consists of the mainland west of Hudson Bay, east of the Rockies and north of latitude 60°N., including the northern archipelago. Its area is 1,242,224 sq. m., and it is divided into the districts of Mackenzie, Keewatin and Franklin. The population consists mostly of Indians and Eskimos. Fur is the chief product.

Northwich Market town and urban district of Cheshire. It is 18 m. from Chester on the L.M.S. and Cheshire Rlys. Here the River Dane falls into the Weaver, which is navigable. The chief industry is salt mining, and there are chemical works. The town has some picturesque, half-timbered houses. Pop. (1931), 18,728.

Northwood Part of the urban district of Hulsip. Northwood. Greatly developed in the 20th century, it has become a residential suburb of London, from which it is 11 m. distant by the L.N.E. and Metropolitan Rlys. Here is the Mount Vernon Consumptive Hospital. Pop. (1931), 16,038.

Norton St. Philip Village of Somerset. Here is the George, which dates from the 15th century, and is said to be the oldest inn in England. Here Monmouth spent the night before Sedgemoor. It may be reached from Bath, which is 6 m. away.

Norway Country of N. Europe. A kingdom, it forms the W. portion of the Scandinavian Peninsula and has an area of 125,086 sq. m. Bounded on the N. by the Arctic Ocean, S. by the Skagerrak, E. by the frontiers of Sweden and Finland, its W. seaboard is on the North Sea and the Atlantic. The land forms a lofty plateau (altitude 1600 ft.), the N. and W. coasts deeply indented by fjords, and the E.

portion marked by valleys. There are numerous lakes. Owing to the rocky and mountainous nature of the terrain, the arable land is only a small proportion of the area, limited to the vicinity of the lakes and firds, and the valleys.

The capital is Oslo (pop. 258,500) on the Oslo fiord. Important towns include Bergen (91,500); Stavanger (43,780); and Trondhjem (55,000). There are important fisheries. Natural water power has been extensively exploited, coal deposits being scanty. There are immense supplies of timber.

The present kingdom dates from 1905 when the union with Sweden (existing from 1814) was ended. The ruler is Haakon VII., formerly Prince Charles of Denmark, born 1872. In 1896 he married Princess Maud of England. The legislative assembly or Storting has two branches, the *Odelsting* and the *Lagting*.

Norwich City and county borough of Norfolk. The county town, it is on the River Wensum, close to its junction with the Yare. It is 115 m. from London on the L.N.E. Ry. Formerly a centre for the manufacture of worsteds, it still produces crape and other textiles. Boot and shoe-making is a leading industry, and there are engineering works, foundries, breweries and tanneries. Starch, mustard, cornflour, etc., are manufactured on a large scale. The cathedral (1098-1500) has two Norman chapels. S. Peter Mancroft Church and the Guildhall are 15th-century buildings; and S. Andrew's Hall, used for music festivals, dates from the same period. The castle, with a Norman keep, is now a museum. Pop. (1931), 126,207.

Norwood District of London. It is on the S. side of the river, mainly in the borough of Lambeth, and is divided into Upper, West and South Norwood, with stations on the S. Ry. The buildings include the Royal Normal College of Music for the Blind. There is a large cemetery at West Norwood and on Beulah Hill there was a spa.

There are several other places of this name in England. One is Norwood Green near Southall in Middlesex and another is a village in Derbyshire famous for its church.

Norwood Cyril. English educationist. The son of a clergyman, he was born Sept. 15, 1875, and was educated at the Merchant Taylors' School and S. John's College, Oxford. After a brilliant career, he passed first into the civil service, and for two years was a clerk at the Admiralty. In 1901 he left the Service and became a master at Leeds Grammar School; in 1906 he was elected head master of Bristol Grammar School; and in 1916 he went to Marlborough where he introduced some rather drastic reforms. In 1926 he was appointed headmaster of Harrow. Dr. Norwood has written on educational subjects.

Nose Organ concerned with smell and respiration. In man it forms above the mouth a facial prominence whose shape varies racially and individually. Two bony cavities, divided by a partition or septum, partly of bone, partly of cartilage, are lined with specially modified mucous membrane constituting the essential organ of smell. This communicates with the olfactory nerves passing through perforations in the roof-bones. For respiration, openings outwards through the nostrils and inwards into the pharynx allow free passage.

NOSE-BLEEDING. Slight bleedings from the nose in young persons need not cause alarm. If the flow of blood persists, place the patient in an upright position with his mouth open, his arms above his head and an ice-bag or cold compress at the back of his neck and on the bridge of his nose.

Notary Official, usually a solicitor or other law agent, who attests or certifies documents, especially bills of exchange. To become a notary a man must pass an examination, and in England be admitted by the representatives of the Archbishop of Canterbury, a reminder of the time when the notary was an ecclesiastical official. There is a Society of Notaries in London.

Notation Written symbolisation of musical sounds. Notation may be phonetic or diastematic. The Ancient Greek system was phonetic; also the modern Arabian system, the old tablaturs, certain "freak" systems and the Paris Galin-Chévé and Tonic Sol-fa methods of to-day. Sound, scale-relationship and key-distance are their bases. The diastematic system of "Notation by Intervals" comprised the "neumes," "figures" and "notes" of ecclesiastical practice from which our present notation has evolved. The pitch of sounds is now expressed by the positions of notes and the presence of clefs on sets of five lines called "staves." Their relative duration is defined by variously shaped notes. Key and rhythm are shown by sign-figures. The rhythmic scheme is shown by barlines which also affect the accentuation of the notes.

Notification Act of giving notice. It is chiefly used in Great Britain in connection with infectious diseases as in tuberculosis. Certain diseases are notifiable, that is, the doctor attending the case must notify it to the medical officer of health for the district. The ministry of health can declare any disease notifiable, and a local authority has the same authority within its area. Since 1901 certain diseases that arise from occupation, such as lead poisoning and anthrax, have been notifiable.

Nôtre Dame French term meaning "Our Lady." Many churches are dedicated to the Virgin and called by this name. The most famous is the cathedral in Paris. Begun in 1163 and finished 200 years later, it is a magnificent Gothic building standing on an island in the river. Its stained glass is one of many notable features. Another is the Sainti Chapelle.

Nôtre Dame de Paris is a novel by the 19th-century French author, Victor Hugo; and deals historically with Nôtre Dame Cathedral. It has been translated into English under the title of *The Hunchback of Nôtre Dame*.

Nottingham City and market town of Nottinghamshire. The county town, it stands on the River Trent, 123 m. from London on the L.M.S. and L.N.E. Ry. S. Mary's Church (Perpendicular, 15th century), S. Nicholas' and S. Peter's are ancient buildings. There is a Roman Catholic cathedral. The castle is a museum and picture gallery. A new university building was opened in 1928 and the new Civic Hall in 1930. The city sends four members to Parliament. The leading industry is lace manufacture; others deal with clothing and hosiery; there are engineering and chemical works. Bicycles and machinery are made. It is the headquarters of

two noted association football clubs—Notts County and Notts Forest. Pop. (1931) 288,801.

Nottingham Earl of. English title held by the families of Mowbray, Howard and Finch successively. The most important holders were—

(1) Charles Howard (Lord Howard of Effingham), English admiral and general. He was born in 1536 and in 1588 had charge of the preparations against the Spanish Armada, as Lord High Admiral of England. He served as one of the commissioners for the trial of Mary, Queen of Scots (1586), and was ambassador to Spain in 1605. He was created Earl of Nottingham in 1599, and died in 1624.

(2) Daniel Finch, English politician. He was born in 1647 and entered Parliament in 1679. He became leader of the Jacobite Tories, and was appointed Secretary of State under William and Mary, but was forced to retire after the naval failures of 1692-3. He was in office again from 1702-4, and died in 1730.

Nottinghamshire County of England. In the north midlands, it is wholly inland and covers 844 sq. m. Nottingham is the county town, other boroughs are Newark, Mansfield, Worksop, and E. Retford. Southwell is the seat of the bishop whose see embraces the county. The chief rivers are the Trent and the Idle. The county is mainly agricultural in the E. and industrial in the W., where are extensive coal mines. A feature of the county is the woodland district called the Dukeries in which are Clumber, Thoresby and Rufford. Another fine house is Welbeck Abbey. Newstead is a place of interest. The county has a first-class cricket team, which won the county championship in 1929. It is also a hunting area. It sends 5 members to Parliament. Pop. (1931) 712,681. "The Nottinghamshire and Derbyshire Regiment is usually called the "Sherwood Foresters." It was formerly the 75th and 95th of the line and its depot is at Derby.

Notting Hill District of London. To the W. of the city, it is in the borough of Kensington on the District Rly.

Nova Scotia Maritime province of Canada. It has an area of 31,428 sq. m. and a pop. (1931) 512,027. The island of Cape Breton at the N.E. end of the peninsula from which it is parted by the Gut of Canso, has an area of 3120 sq. m. The peninsula is joined to the port of New Brunswick by the Isthmus of Chignecto, 11-12 m. wide. The capital is Halifax. Sydney, on Cape Breton, ranks next in importance. There are many lakes in both portions. The island has extensive coal deposits, and on the peninsula are found also copper, iron and gold. There are important fisheries. First settled by the French, Nova Scotia passed to England in 1621, its possession being contested by both nations thereafter till 1713, when by the Treaty of Utrecht it was ceded to Britain. It is governed by a ministry responsible to a House of Assembly of 38 members. The province sends 10 senators and 14 M.P.'s to the Dominion Parliament.

Novatianism Schism which arose in 3rd-century Christendom. Novatian, Bishop of Rome, protested against the lax readmission of communicants who, during the Decian persecution, relapsed into paganism. His followers spread over the Empire, calling themselves Catharists or Puritans; by the 6th century they were reabsorbed.

Novaya Zembla Group of islands in the Arctic Ocean belonging to Russia. It consists of two large islands and many smaller ones between Barents Sea and Kara Sea. The area is 35,000 sq. m. There are a few inhabitants, but the interior is largely unknown.

Novel Work of prose fiction, primarily one that has a background of real life. It developed from the romance which deals with legendary matter and originated in the *novella* of Boccaccio and other writers. In the 18th century English and French writers began to express their ideas in the novel, and in the 19th and 20th centuries it became the most popular form of literature.

The history of the English novel has been summarised as follows: "In the 150 years that were the flowering time of English prose fiction, between the publication of Fielding's first novel and Meredith's and Hardy's last, the novel has been adapted to an infinity of different shapes, domestic, sentimental, realistic, philosophical, didactic, propagandist. But all great novels have this in common, that they are an interpretation as well as a presentation of life, that they view things temporal against a background of things eternal, and that they are an attempt to reconcile the known with the unknown." Since the Great War the literary novel in Europe has concerned itself very largely with the problems of psychology.

Novello Ivor. British actor and composer. Born Jan. 15, 1893, he was educated at Magdalen College School, was a chorister of Magdalen College, and then studied composition under Dr. Brewer of Gloucester. He wrote many songs, including "Keep the Home Fires Burning." He began management on the stage with *The Rat* in 1924. He has acted in several of his own plays—*The Rat*, *Symphony in Two Flats* and *I Lived with You*. He has also acted star parts in many films.

Novello Vincent. English musician and publisher. Born in London, Sept. 6, 1811, the son of an Italian father and an English mother, he was a chorister at the Sardinian Chapel where he learnt the organ. He was organist in several chapels in London and was a founder of the Philharmonic Society in 1815. He wrote much sacred music, and introduced into England many unknown compositions by the great masters. His first work in 1811, a collection of sacred music, marked the founding of the publishing house of Novello. He died Aug. 9, 1861.

Novocaine Crystalline salt which is very soluble in water, novocaine is known also as ethocaine hydrochloride. It is a highly complex substance prepared in several stages from glycol bromohydrin, and is used as a local anaesthetic in surgery, particularly dentistry, as a less toxic though less efficient substitute for cocaine.

Noyes Alfred. English poet. Born in Staffordshire, Sept. 16, 1880, his first volume of poems was *The Loom of Years*, (1902), but his *Forty Singing Seamen* (1907) and *Drake* (1908) established his fame as a poet of the sea. He lectured in America in 1913 on *The Sea in English Poetry*, and from 1914 to 1923 he was Professor of English Literature at Princeton. Amongst his other publications are *A Salute from the Fleet* (1915), *Walking*

Shadows (1917) *Robin Hood* (1927) *The Immortal Legions* (set to music by Sir Edward Elgar), *The Last Voyage* (1930) and *The Torch-bearers* (1931).

Noyon City of France. It is 67 m. from Paris on the little River Verre. The chief building is the cathedral, a beautiful edifice which was damaged during the Great War, when the city was occupied by the Germans. Noyon was one of the capitals of the Frankish kings and here John Calvin was born. Pop. 7000.

Nubia Region in Africa. Extending from the Red Sea to the Nile and from Egypt to Abyssinia, it was important in ancient times, later being known as Ethiopia. It is now largely in the Anglo-Egyptian Sudan, where the name is preserved as the Nubian Desert.

Nucleus Latin word, meaning "kernel," denoting the central mass round which matter gathers. In physics, it denotes a central particle, constituting with its electrons an atom, or the densest region of a comet's head or sun-spot. In biology, it denotes a roundish body included in and essential to the growth of an animal or vegetable cell (*q.v.*).

Nudism and Nudist Movement. See SUN BATHING.

Nuisance In law something that causes injury, loss or inconvenience to another. Public nuisances include the carrying on of offensive or dangerous trades, the depositing of rubbish in a public place, keeping a disorderly house, the ownership of foul drains and other things likely to damage the health or morale of the community. There are also private nuisances, such as making continuous noises near a dwelling house. The sanitary inspectors and other officials have power to stop public nuisances, which they do by obtaining an order from a Court of Law.

Nullity Word used in a legal sense in connection with marriage. The courts of law have power to declare a marriage null and void on several grounds. These include insanity or impotence on the part of one of the partners, a prior marriage or consanguinity. A marriage may also be declared null if the consent of one of the parties was obtained by fraud.

Numbers Book of. Fourth book of the Old Testament. The title indicates its statistical records of two national censuses, beginning and ending the wilderness wanderings (i.-iv., xxvi.). Notices of outstanding events include the rebellion of Korah, Dathan and Abiram, the visit of the twelve spies to Canaan and the Baalam mission. Much legislation is interspersed, and lost volumes of early poetry are quoted.

Numeral Figure used to express a number. The use of letters for expressing numbers was adopted by the Greeks and some other ancient nations, and later by the Romans, who used the seven letters—M. D. C. L. X. V. I.—in various combinations, a cumbersome method still in use to some extent. From about the 12th century European nations adopted the so-called Arabic system of notation, a modification of Hindu numerals, as being more convenient for use than the Roman numerals.

Numidia Name given by the Romans to a district now part of Algeria. It was seized by the Romans about 200 B.C., but remained under its own kings.

A century later one of them, Jugurtha, revolted, and the land was conquered. In 46 B.C. Julius Caesar made it a province.

Numismatics Science of coins and medals. It deals with the history and art of coinage among ancient and modern nations and has its value as a historical record and as a study of the mythologic art of ancient peoples. Apart from coinage proper, the art of casting medals reached a high level in Italy in the 15th century.

Nunc Dimittis Psalm or canticle used in the worship of the Christian Church. It is the Song of Simeon (Luke ii.) after he had seen the child Jesus, and begins, "Lord lettest Thou Thy servant depart in peace." It is in the Prayer Book of the Church of England for use at evensong, and is used in the Roman Catholic Church at compline.

Nuncio (Latin *nuntius*, messenger). Term used for one sent from the Vatican on Papal business. He is thus the equivalent of an ambassador.

Nuneaton Municipal borough and market town of Warwickshire. On the River Anker, 9 m. from Coventry, and 97 from London, on the L.M.S. Ry., it has manufactures of ribbons, etc., glazed bricks, tiles and sanitary pipes. Here was born the novelist whose pen name was George Elliot. Pop. (1931) 46,305.

Nunhead District of London. It is 6 m. from the city by the S. Ry., and is part of the borough of Camberwell.

Nuremberg (Nürnberg). City of Bavaria. On the River Pegnitz, 95 m. from Munich, it is a centre for toy manufacture. Optical, electrical and other apparatuses are made, and there is a large production of pencils and allied articles. Printing is a leading industry. An ancient town, it still has the old walls and moat, with many buildings of the Middle Ages. Albrecht Dürer was born here, and a number of his works are in the picture gallery. The high school was founded by Melancthon. The castle, dating from 1050, was an imperial residence. It has a broadcasting station (239 M., 2 kW.). Pop. 392,500.

Nursery School Institution which provides for the healthy development of children between the ages of 2 and 5, thus bringing the gap (in England) between the Infant Welfare Centre and the Elementary School. The establishment of state Nursery Schools in 1929 was due largely to the pioneer work of Miss Margaret McMillan at Deptford. In them great stress is laid on the value of open-air, sunlight, play, rest and cleanliness.

Nursing Sick-nursing owes its development primarily to three factors—religion, war and science. Long as its history is, however, it was not until the 19th century that regular training was started in Germany—a movement which was to gain impetus from the work of Florence Nightingale (*q.v.*) in the Crimean War, and to be furthered by the needs of the sick and wounded in the American Civil War.

NURSING AS A CAREER. Since the passing of the Registration Act in 1919 nurses have been recognised as essential servants of the State.

The nursing profession may be divided into the following branches: institutional, state

services, local government, independent, educational, industrial, overseas, and district nursing.

Training in a hospital recognised by the General Nursing Council, under the Nurses' Registration Acts, is essential in all branches of the profession with the exception of that of Midwifery, which is organised by the Central Midwives' Board.

In choosing a training school the candidate must inform herself whether it be a training school approved by the General Nursing Council. She usually has a short period in a preliminary training school and a trial period in the wards, before signing her contract with the hospital authorities for three or four years' training.

During her three or four years' training she takes the State Examinations, the preliminary after eighteen months' training, and the senior at the end of three years (fees, five guineas in all). She may then place her name on the State Register. At the completion of her contract with her hospital she receives the hospital certificate and has the status of a trained nurse.

The rate of pay for probationers varies from £18 a year to £40 in the senior year.

Training may also be taken at various specialised hospitals for particular branches of the profession, but the general training certificate is usually required in addition.

The types of hospitals providing training are :
For young girls, 18-21 :

Sick Children's Hospitals—preparing candidates for registration as sick children's nurses.

Fever Hospitals—preparing candidates for registration as fever nurses.

Orthopaedic Hospitals.

Babies' Hospitals.

Eye Hospitals.

Children's Convalescent Hospitals.

For candidates of 21 and over :

General training at approved General Hospital Training Schools (see above).

Mental Hospitals—preparing candidates for registration as mental nurses.

Skin Diseases Hospitals.

Women's and Children's Hospitals.

Tuberculosis Hospitals.

Convalescent Hospitals.

Midwifery Training Schools.

The salaries for Institutional Nursing vary from about £60 for a staff nurse to £500 for a superintendent.

In the State Services rates of pay are usually higher, but regulations are more rigid, and army nurses may be called upon to do a period of service abroad.

District Nursing.—The work of the District Nurse is the nursing of the poor in their own homes. Appointments are made by District Nursing Associations, organised by Voluntary Committees; most are affiliated to the Queen's Institute of District Nursing, 58 Victoria Street, S.W.1.

Other Public Health Nursing work includes Health Visiting, Tuberculosis Nursing, and School Nursing. These appointments are made by local Maternity and Child Welfare and Education Committees, and some by voluntary committees. Health Visitors must undertake a special training and obtain the Certificate of the Royal Sanitary Institute approved by the Ministry of Health.

Private Nursing.—A nurse engaged in private as distinguished from hospital nursing

usually resides in or belongs to a Nurses' Co-operation which may or may not be connected with a private nursing home. Cases are then taken in turn by the nurses, who make use of the "home" while they are not employed on a case.

Full information regarding the Nursing profession can be obtained from the College of Nursing (Henrietta Street, Cavendish Square, London, W.1).

See also MIDWIFERY; MASSAGE.

Nutcracker Bird of the raven and crow family (*Nucifraga caryocatactes*). It has a brown body plumage speckled with white, black wings and tail; the beak is long and nearly straight. They are common in northern Europe and Asia.

Nutmeg Seed-kernel of the fleshy fruit of a bushy evergreen tree, (*Myristica fragrans*) indigenous to the Dutch E. Indies. It is used as an aromatic condiment, in cookery and in medicine; the fibrous network enclosing the nutshell is the spice called mace. The trees grow widely in Penang, the W. Indies and tropical S. America.

Nux Vomica Disk-shaped seeds of a small deciduous tree of the strychnos family (*Strychnos nux-vomica*), indigenous to India, and growing also in Farther India and N. Australia. They and the allied Ignatius beans of the Philippines yield most of the bitter alkaloid poisons, strychnine and its derivatives, employed medicinally as tonics and heart stimulants.

Nyasa Lake of Africa, the largest in the continent, discovered by David Livingstone in 1859. It is in the south-east and covers 15,000 sq. m., being 350 m. long. The western shores are British and the eastern British and Portuguese. Fort Johnston and Karonga are ports on the lake. A number of rivers flow into it and its waters are carried by the Shire to the Zambesi.

Nyasaland British Protectorate in Central Africa, bounded by Lake Nyasa, Tanganyika, Rhodesia and Portuguese East Africa. The climate is tropical but cooler in the Shire Highlands. Large areas are fertile and plantations of coffee, cotton, tobacco, tea, etc., are established. Native education is provided by Missionary Societies under Government grants. Blantyre, the chief settlement, is connected by rail, except actually across the Zambesi, with the port Beira. Capital, Zomba.

Area (land) 37,890 sq. m. Pop. 1,304,123 natives, 2821 others.

Nymph In classical mythology, a localised nature-spirit or minor divinity, to whom offerings of milk and honey might be made. They were classed as water-nymphs, Nereids and Naiads; mountain-nymphs, Oreads; tree-nymphs, Dryads, and the like.

Nystagmus Medical term for an involuntary movement of the eyeball, due to a nervous spasm of the muscles of the eye. It is either congenital, acquired, or a symptom of some cerebrospinal disease. When the movement is horizontal the nystagmus is termed oscillatory, other movements are either rotary or oblique. It is frequently observed in miners who are constantly working in a dull light. This form of nystagmus is regarded as an occupational neurosis.

OAK Genus of deciduous or evergreen trees, (*Quercus*) and shrubs of the beech order, natives of N. temperate regions. Their nuts, called acorns, have cup-like receptacles. Of nearly 300 species one only, *Q. robur*, is indigenous to Britain; it is found in all temperate regions.

Two forms occur, with stalked leaves and acorns; they may attain 120 ft. in height. The timber was largely used, notably in 16th-18th century Britain, for shipbuilding, roof-construction, wall-panelling and furniture. Home-grown oak still provides railway wagons, church furniture and wood-Mock flooring. Oak bark is a source of tannin, acorns a favourite swine food. See BOG-OAK, CORK, HOLM OAK.

Oak-Apple Day In England name given by royalists to May 29th, the birthday in 1630 of King Charles II. On this date, in 1660, he returned to England, the Restoration. Oak leaves and boughs were then used as decorations, by the royalists, in remembrance of the king's escape at Boscobel, by concealing himself in an oak tree, after the Battle of Worcester in 1651.

Oakengates Market town and urban district of Shropshire. It is 13 m. east of Shrewsbury and 140 from London, by the G.W. Rly. Coal and iron industries are carried on. Pop. (1931) 11,189.

Oak Gall Excrecence on the surface tissues of oak trees. Varying in size and form, from oak-apples to oak-spangles, they occur on leaves, flower-stalks, bark and rootlets. They are mostly due to gall-wasps, *Cynips*, whose eggs are deposited with an irritant fluid which occasions the abnormal cell-growth. Some, especially the Levantine, yield tannin and gallic acid.

Oakhams Urban district of Rutland, also the county town. It is 11½ m. west of Stamford, and 94 from London, by the L.M.S. Rly., being also served by the L.N.E. Rly. It has footwear manufactures. Pop. (1931) 3191.

Oaks The English horse race. It is run at Epsom, two days after the Derby, and is open to fillies of three years old. It is named after a house near Epsom, once the residence of the Earl of Derby.

Oakum Substance obtained from old tarry ropes and ships' cordage, untwisted and picked into separate loose hempen fibres. It is employed in caulking the seams of wooden vessels and the deck-planking of steel ships, and is an emergency wound-dressing. Oakum-picking was formerly exercised in convict prisons and workhouses. Untarred ropes furnish white oakum.

Oakworth Urban district of Yorkshire. It is 3 m. from Keighley and 215 m. from London, by the L.M.S. Rly., and has textile manufactures. Pop. 4170.

Oamaru Town and port of South Island, New Zealand. It is 156 m. from Christchurch. Its industries are connected with the meat and wool produced. Pop. 5100.

Oar Fish Genus of large deep-sea spiny-finned ribbon fishes (*Regalecus*). The scaleless body, 12 to 20 ft. long, is sur-

mounted by a continuous dorsal fin whose foremost rays are enlarged into a crest; the ventrals become long paddle-tipped filaments. During the past 150 years examples have been stranded on British coasts.

Oasis Geographical term for a fertile area in a desert. Oases are due either to the presence of wells or subterranean water, or again to the sinking of artesian wells as practised in North Africa and Australia. Usually in Africa doum and date palms are characteristic of oases, but in larger areas various cereals are cultivated.

Oates Lawrence Edward Grace. English explorer. Born in 1880, he was educated at Eton and became a soldier. He served with the cavalry in South Africa (1901-02) and later wars in India and Egypt. In 1910 he went with Scott on the expedition to reach the South Pole. On March 17, 1912, when they were returning and in dire straits, Captain Oates, who was crippled with frost, walked out into the open and met his death in order to make the task of his comrades easier. His epitaph is "a very gallant gentleman." A district in Antarctica is named after him.

Oates Titus. English conspirator. Born in 1649, he took Anglican orders, and after being dismissed from several posts, posed as a Roman Catholic in order to get inside knowledge of supposed Catholic plots. With the aid of Tonge, he pieced together the true and the false, and informed the king through his confidential servants. Charles II. did not believe his story, although the populace did, and acclaimed him as saviour of the country. By his unscrupulousness thirty-five people were wrongly executed. He was later found out, disgraced, flogged, and imprisoned for life, but after the Revolution of 1688 he was set at liberty. He died July 12, 1705.

Oath Solemn declaration attested by the name of God. In English Law nearly all evidence must be given on oath, save that since the Oaths Act of 1888, any one who objects to an oath on the ground of religious belief may make an affirmation instead. By the Oaths Act of 1909, the witness, when being sworn in, may hold a copy of the Scriptures in his hand, instead of "kissing the book."

Oatlands District of Surrey. It is near Weybridge and was once a park in which Henry VIII. built a palace. This was used by James I. and Charles I. but was destroyed by the Parliamentarians. It was rebuilt by the Duke of York, a son of George III., and is now an hotel.

Oats Annual cereal grass (*Avena sativa*), apparently first cultivated in bronze-age Europe. It is grown extensively in Central and N. Europe, Russia, the U.S.A., Canada, Argentina and elsewhere. The world production is 64 million tons, of which Great Britain raises 3 million and Canada 6½ million tons. Mostly grown for horse-fodder, oats are also an important human food. Kiln-dried and freed from husks, they become groats, are ground into oatmeal for porridge or prepared as breakfast cereal e.g., rolled oats, oat flakes, etc.

Obadiah Hebrew Minor prophet. The first sixteen verses of his Book

announce Edom's destruction; the last five, post-exilic, predict Israel's restoration and the coming of the Day of the Lord.

Oban Burgh, seaport, market town and pleasure resort of Argyllshire. It is 113 m. from Glasgow and is reached by the L.M.S. and L.N.E. Ry., and also by steamer. It stands on a bay protected by the Island of Kerrera, which makes a fine harbour. It is a yachting centre, and here the Argyllshire Gathering is held in September. The scenery around is very beautiful. Pop. (1931) 5759.

Obelisk Tall four-sided monolithic pillar tapering towards the summit and having a pyramidal apex often covered by a copper sheath. Obelisks were used chiefly in Ancient Egypt and were erected either as memorials by some monarch or as pillars in relation to the entrance of a temple. One obelisk, erected by Queen Hatshepsut and still standing at Karnak, is over 107 ft. in height and weighs about 300 tons. The so-called Cleopatra's Needle in London is an obelisk brought from Heliopolis, where one erected by Senusert I. still remains. Others from the same locality have been brought to Rome and New York.

Oberammergau Village of Upper Bavaria, Germany. Situated in the Ammer valley, 45 m. S.S.W. of Munich, with electric railway connection, its peasant inhabitants are wood and ivory carvers, producing toys, crucifixes and other religious objects. After a plague in 1633 the villagers vowed to present every tenth year, as an act of devotion, a living representation of Christ's Passion, as already done from mediæval times. This has been done ever since, almost without exception, the last occasion being in 1930. See PASSION PLAY.

Oberon King of the Fairies. He appears in a French romance of the 13th century, but is better known as a character introduced by Shakespeare into *A Midsummer Night's Dream*. Oberon is the title of a masque by Ben Jonson.

Obesity Condition of the body marked by over-accumulation of fat. It usually occurs immediately beneath the skin, as in the neck and thighs, or around the abdomen and various internal organs. Sometimes hereditary, it may betoken a luxurious, inactive life, with over-indulgence in sleep, food or malt liquors. Dieting sometimes affords relief.

Oblates In the Roman Catholic Church, secular persons devoted to a monastery without monastic vows. The term denotes also congregations of fathers or sisters at the bidding of the bishop in whose diocese they live, for preaching, educational or missionary work, e.g., Oblates of S. Charles, 1878, Oblates of Mary Immaculate, 1815.

Oboe (or Hautboy). Treble reed-wood-wind instrument, with a conical bore and a double-reed mouthpiece. It is usually made of ebony, silver or boxwood, has fifteen keys, and two octave keys. The compass is from B flat below the treble stave, to F in alt, with all chromatic semitones. It gives rich, if penetrating notes, and is, technically, very efficient.

Obregon Alvaro. Mexican president. Born in 1890, with Villa and Gonzalez he took a leading part in Carranza's revolution, 1913. As head of the constitutional forces, he entered Mexico City, Aug. 15, 1914. When in 1915 Villa turned against Carranza,

Obregon led the campaigns against Villa. Chosen President in Sept., 1920, he held that office till 1924. Succeeded then by Calles, he was again elected President four years later to follow Calles, but was assassinated on July 17, 1928.

Observatory Building where observations are made. They are of two main kinds, astronomical and meteorological, although some, Greenwich, for example, do both kinds of work.

There are three royal observatories in the British Empire, at Greenwich, Edinburgh and the Cape of Good Hope. In addition there are some 30 others scattered all over the Empire, one being at Canberra and another at Apia in Samoa. Some of these observatories are especially for the study of solar physics.

The finest astronomical observatories in the world are probably those of the United States. Among them are the Lick Observatory in California with the most powerful telescope in the world, the Lowell Observatory in Arizona, on a mountain 7000 ft. high, and the Carnegie Solar Observatory on Mt. Wilson, California.

Great Britain has eight meteorological observatories.

Observer Rank in the Royal Air Force. The observer accompanies the pilot, and his duties are indicated by his name. The equivalent rank in the navy is that of sub-lieutenant, or mate, and in the army that of lieutenant.

Obstetrics Branch of medical science covering treatment previous to and during child-birth and the after-treatment. Although an ancient science, marked improvements are comparatively modern as in the use of specialised instruments, the introduction of chloroform and hypodermic injections as anaesthetics. Improvements in surgical technique have removed most of the danger of major operations such as the Caesarean which may occasionally be necessary. The provision of properly qualified midwives in industrial and other areas has proved notably beneficial.

Occam William of. English schoolman. Known as Doctor Singularis et Invincibilis, he was born at Ockham, Surrey, about 1300. He joined the Franciscans and studied and taught at Merton College, Oxford, between 1312-24. He was one of the most important figures in the struggle between Pope and Emperor, and advocated the independence of civil rule, and attacked the temporal power of the Papacy. He also wrote much in philosophy, metaphysics and theology, and his chief work, summarising his views, was the *Dialogus*. He died at Munch in 1349.

Occlusion Term, "shutting up" denoting (1) fitting together of the masticating surfaces of the upper and lower teeth in biting; (2) absorption of gases by certain elements. Palladium absorbs 800-900 times its own volume of hydrogen when heated as a cathode for decomposing water; finely-divided charcoal absorbs deleterious gases, a power utilised for disinfection.

Occultation In astronomy, the hiding of one celestial body behind another. It may be the eclipse of a fixed star or planetary body by the moon or a planet, e.g., that of one of its own moons by Jupiter. Occultations are utilised for determining longitudes, or measuring the occulting body's angular diameter.

Ocean Geographical name for the largest expanses of water which together

occupy about 72 per cent. of the earth's surface. Of these the Pacific Ocean is the largest, being equal to about three-eighths of the total oceanic area and having the greatest depths. Fringing the ocean basins are shallower marginal seas covering a continental shelf or platform over which at various periods in geological history the oceanic waters have encroached or even receded to the edge of the submerged shelf. See ATLANTIC, PACIFIC, etc.

Oceania Name applied to the islands in the Pacific Ocean from Australia to the Marquesa Islands and the Low Archipelago, and from New Zealand to the Hawaiian Group. The main divisions of the region are the three large islands; Australia, Tasmania and New Guinea, and three island groups Melanesia, including the Solomon Islands and the New Hebrides and partly New Caledonia, Micronesia, including the Caroline Islands and the Ladrone Group, and Polynesia, extending from New Zealand to Hawaii, and from the line from New Caledonia and the Gilbert Islands eastward.

Oceanus In legend, the name of the river supposed to encircle the earth. It was originally the name of a god.

Ocelot Handsome American cat (*Felis pardalis*), ranging from Arkansas to Paraguay. Corresponding to the clouded leopard of S.E. Asia, it is 3 to 4 ft. long, with 11 to 15 in. tall. Normally tawny-yellow, spotted with black-edged, fawn-coloured markings, several varieties occur. A forest animal, of savage disposition, it preys on small mammals and birds.

Ochil Range of hills in Perthshire and neighbourhood. They are in the south-east of the county and extend also into the counties of Stirling, Fife, Clackmannan and Kinross. The range is about 25 m. long and the highest points are just over 2000 ft.

Ochre Name given to certain earthy or clayey varieties of the oxides of iron. Yellow and brown ochres are forms of the hydrated oxide, limonite, whilst red ochre, or reddle, is a variety of the peroxide haematite. These ochres when ground and washed are used as pigments, but much of the commercial material is prepared artificially from iron oxides, although the manufactured pigment is inferior to the natural one. Ochres are obtained from France, Holland and the midland counties of England.

O'Connell Daniel. Irish patriot and politician, nicknamed "The Liberator." Born near Cahirciveen, County Kerry, on Aug. 6, 1775. He was called to the Irish Bar in 1798, and displayed a great gift for oratory. In 1828 he entered Parliament, and in 1829 the Irish Catholics were emancipated. He organised the Irishmen into the "Catholic Association," and began, in 1841, his agitation for the repeal of the Union. The Tory cabinet, under Peel, was not sympathetic, and mass meetings were held everywhere. O'Connell was imprisoned for sedition on the eve of success, and a few months later set free. He died on May 15, 1847.

Octave In music: (1) The perfectly consonant interval of an eighth formed by the sounding of any scale-note with that above it bearing the same name. (2) An organ-stop of 8 ft. on the pedals (or 4 ft. on manuals).

In poetry: (1) An eight-lined stanza. (2) The first two quatrains of a sonnet written on the same pair of rhymes.

The octave of a church feast occurs on the same name-day of the following week.

Octavia Roman matron. She was the sister of the Emperor Augustus (Octavian) and a niece of Julius Caesar. She married first Gaius Marcellus and secondly Mark Antony, who left her for Cleopatra and so brought about the renewed quarrel with Augustus which ended in Antony's death. Octavia died in 11 B.C.

Octavo Term used in bookbinding for a book or sheet of printed paper which has been folded three times or one-eighth of its original size, thus forming eight leaves or sixteen pages. The word octavo is usually abbreviated to 8vo, and certain sizes of books are named foolscap 8vo, demy 8vo, royal 8vo, etc.

Octopus Widespread group of eight-armed, head-footed molluscs. They have rounded bag-like bodies, large eyes and central mouths with horny jaws like parrot beaks. Besides the common octopus, with double rows of suckers to each tentacle, a lesser one also occurs on British coasts, belonging to another genus, with single rows of suckers. See CEPHALOPODA.

Oddfellow Name given to members of certain friendly societies. The first was founded in London early in the 18th century. It ceased to exist about the end of the century, but in 1810 the Independent Order of Oddfellows, Manchester Unity, was founded, and this is now one of the largest of the friendly societies. It has about 750,000 members, and funds amounting to over £20,000,000.

Ode Form of stately and elaborate lyrical verse, in astrophic arrangement. It derives from the Greek choir-song, and was originally a poem written to be sung to an instrumental accompaniment, supported by a chorus. Pindar, the master of the ode, developed it in a consciously elaborate form. Modern poets follow the lyrical ode of Sappho and Alcaeus.

Odense City and seaport of Denmark. It is on the river of the same name on the island of Fünen, 27 m. from Copenhagen. A ship canal connects it with the fjord of Odense. There is a good harbour and the city is one of the country's chief seaports. It has a beautiful Gothic cathedral, and the house in which Hans Andersen was born is now a museum. Pop. 43,300.

Oder River of Europe. It rises in Czechoslovakia, but soon enters Germany and flows mainly in a northerly direction to Stettin on the North Sea. It is 500 m. long, and most of its course is navigable for small vessels. Canals connect it with the Elbe and the Vistula. Its chief tributary is the Warta.

Odessa Seaport of the Ukraine. On the Black Sea, about 35 m. from the mouth of the Dniester and 90 m. south-west of Kherson, in the government of that name, Odessa is in the midst of a grain district. When the Dardanelles were closed by Turkey, in 1914, Odessa was cut off from the allies, and was bombarded by the Turks. Captured by German forces in March, 1918, it was taken by the Bolsheviks in 1920. It has a broadcasting station (450.4 M., 4 kW.). Pop. 411,450.

Odin Chief god of the Northern pantheon; the Anglo-Saxon Woden. Originally a storm-god, "the frenzied one," he was represented as venerable, one-eyed, and attended by two ravens and wolves. He was worshipped

chiefly by the warrior nobles and their retainers, and called the All-father and receiver of the souls of the slain in Valhalla.

O'Donnell Ancient Irish family. They were lords of Tyrconnel, whose rivals were the Ulster O'Neills. They were descended from King Niall of the Nine Hostages, who reigned at the beginning of the fifth century. Tyrconnel comprised the greater part of modern Donegal.

The first great chieftain was Goffraidh, in the thirteenth century, who was the first to be called "The O'Donnell," and who successfully raided Tyrone and Connaught. Manus O'Donnell ruled Tyrconnel when his father pilgrimaged to Rome in 1511, but retained his authority after his return, with the help of the O'Neills. Later father and son fought the O'Neills, but they joined together with the O'Briens to form the Geraldine League, to restore the earldom of Kildare to Gerald, the stepson of Manus. He died in 1584.

Calvagh O'Donnell, eldest son of Manus, was captured by Shane O'Neill, tortured for three years, and when released, appealed to Elizabeth. He was restored to his rights, but died the following year.

Hugh Roe ("Red Hugh") O'Donnell was born in 1571 and fought against the English in Ireland. In 1602 he fled to Spain, leaving everything to his brother, Rory O'Donnell, born 1575. He paid allegiance to the king, but later plotted to seize Dublin Castle in 1607, was found out, fled to Rome, and died there in 1608.

Odysseus Alternative name for the Greek hero Ulysses (q.v.).

Oedipus In Greek legend, son of Laius, King of Thebes, and Jocasta. An oracle having warned Laius that Jocasta's offspring would cause his death, Oedipus was exposed, but was found by shepherds, and brought up ignorant of his parentage. Unwittingly he slew his father and wedded his own mother. The gods demanded the discovery of the king's slayer, and the result of the investigation led Jocasta to hang herself and Oedipus to become self-blinded. The story inspired two tragedies by Sophocles.

Oenolin Name given to the colouring matter of wines. It is a violet red or brownish red powder obtained from wine by precipitation with basic lead acetate.

Oesophagus Name given to the gullet, the straight tubular portion of the alimentary canal leading from the pharynx to the stomach in an animal. It has no digestive function but merely serves to carry food from the mouth. In the higher crustaceans the hinder end of the oesophagus forms a kind of gizzard.

Offa King of Mercia. Of royal blood, he ejected a rival and obtained the crown, 757. He restored Mercia's shrunken condition, and by vigorous campaigns secured virtual control of Britain S. of the Humber. He was described as King of the English by the Pope, who sanctioned a new archbishopric at Lichfield. He died in 796.

Offal Refuse or waste. Butcher's offal comprises all besides the hanging carcass. During the Great War, when meat was rationed, liver, sweetbread, etc., were ranked as offal and unrationed. A hide's prime parts form the butt, shoulder and belly pieces being offal. In flour-milling, bran, with some flour attached, is offal, furnishing cattle-food.

Offaly County of the Irish Free State, formerly called King's County. It covers 733 sq. m. and is wholly inland. The Shannon, which flows along its boundary, the Brosna and the Barrow are the principal rivers. There are hills in the south, and the shore contains much of the Bog of Allen. Tullamore is the county town; other places are Birr or Parsonstown, Banagher, Edenderry and Philipstown. An agricultural area, the Grand Canal passes through it. Pop. (1926) 52,600.

Offa's Dyke Ancient earthwork forming a boundary between Mercia and the Welsh. Built by King Offa, about 779, its remains still traverse discontinuously for 140 m. portions of four Welsh and three English counties from the Dee to the Severn estuaries. Mostly a rampart, seldom exceeding 12 ft. in height, its ditch lies on the W. side.

Offenbach Jacques. German-Jewish composer. Born at Cologne Jan. 21, 1819, in 1833 he went to Paris, where he conducted the orchestra of the "Théâtre Français" in 1848, and was manager of the "Bouffes Parisiens" in 1855. He was the composer of many light operas, including *La Belle Hélène*, *La Grande Duchesse*, *Orphée aux Enfers* and *Les Contes d'Hoffmann*, which is still popular. He died Oct. 5, 1880.

Officer Person holding a commission in the fighting forces. Army officers were at first required to collect and maintain, at the public expense, the men forming their troops, but now they only command and lead them. Training institutions include the Royal Staff College, the Royal Military Academy, Woolwich, and the Royal Military College, Sandhurst. The Officers' Training Corps is an organisation among the universities (senior branch) and schools (junior branch) whereby students receive training in military drill, musketry, signalling, etc., with the object of teaching them obedience, discipline and self-control. See NAVY, AIR FORCE, etc.

Official Receiver Legal official appointed to look after the affairs of bankrupts. They were first appointed in 1883. Some of the receivers are at the bankruptcy court in Carey St., London, W.C.2., while others are in the large cities and towns of the provinces.

Offset In printing, a process in which the impression of a design is transferred to a rubber cylinder from which it is printed or offset. It is specially suitable for reproducing designs on rough paper. In surveying, offsets are lines drawn perpendicular to a given straight line for the measurement of distances.

Ogive Architectural term used in France for the pointed type of arch which occurs in some early churches such as the Abbey of Cluny and some late Romanesque buildings, although it did not become common until the period of Gothic architecture. The pointed arch was used in Syrian, Persian and Saracenic buildings and probably was introduced into Europe by way of Sicily. In English architecture the term *ogive* ribs is applied to the main intersecting ribs of a vault.

Oglethorpe James Edward. English general and philanthropist. Born in London, Dec. 21, 1796, he was aide-de-camp to Prince Eugene in his campaign against the Turks (1716-17), distinguishing himself at the siege of Belgrade. He later entered Parliament, and was responsible for the settling of a

colony in America between Carolina and Florida, as a refuge for insolvent people and oppressed Protestants on the continent. This he called Georgia (*q.v.*).

Ogmore Urban district of Glamorgan-shire, in full Ogmore and Garw. It is 3 m. from Bridgend. It is a coal mining area. The place is named from the river Ogmore which flows through Glamorgan-shire to the Bristol Channel. Pop. (1931) 20,979.

O'Higgins Bernardo. Chilean soldier and statesman, the son of the Irishman, Ambrosio O'Higgins, Governor of Chile, he was born Aug. 20, 1776, and educated abroad. O'Higgins returned to Chile in 1802, and fought against the Royalists. As commander he superseded Carrera, whose rivalry caused him to flee to Mendoza. Here he met José de San Martín, with whom he began a long and loyal association, which resulted in the decisive victory of Chacabuco (1817). In 1822 O'Higgins called a congress, which adopted a constitution giving him dictatorial powers over Chile. Discontent and risings occurred, and in 1823 O'Higgins resigned his post of director-general and retired to Peru. He died Oct. 24, 1842.

O'Higgins Kevin Christopher. Irish statesman. Born in 1892, after the Easter rebellion of 1916 he joined the Sinn Féin Movement, and was interned. While in gaol, he was elected member for Queen's County. In 1922 he became Minister of Justice in the New Free State Government, and established the Civic Guard, which put down disorder firmly. While the controversy with de Valera on the taking of the Oath in the Dáil was proceeding, O'Higgins was assassinated by unknown men, July 10, 1927.

Ohio State of the U.S.A., in the N.E. of the country, Lake Erie forming most of its northern boundary. The capital is Columbus, and there are several other very populous centres, including, Cleveland, Cincinnati, Toledo, Akron, Dayton, Youngstown, Canton and Springfield. The state is largely an agricultural area and great quantities of wheat and maize are produced. The rearing of livestock is also conducted on a large scale. Iron and coal are mined and the shipping on Lake Erie is an important industry. Ohio is governed by a legislature of two houses. It sends two senators and 22 representatives to Congress. Ohio covers 41,000 sq. m. Pop. (1930) 6,646,700.

Ohio River of the U.S.A. It rises near Pittsburgh, being a union of the Monongahela and the Allegheny, and flows to the Mississippi, which it enters at Cairo. It is 975 m. long and is navigable by large vessels, being perhaps the most important waterway in the country. Its tributaries include, Tennessee, Cumberland, Wabash and Kentucky. Pittsburgh and Cincinnati are the largest cities on its banks.

Ohm Term applied to the practical unit of electrical resistance, defined as the resistance of a column of mercury 186.3 cms. long, of a constant area in cross-section, and weighing 14.4521 grams at the temperature of melting ice. A megohm is one million ohms and a microhm one millionth of an ohm.

Ohm's law states that in a circuit carrying a constant current, the current is directly proportional to the electromotive force and inversely proportional to the resistance of the circuit.

Ohmmeter Form of electrical instrument used for measur-

ing electrical resistance directly in terms of ohms and megohms. There are many forms of ohmmeters, one type consisting of two fixed coils with another coil placed at right angles to the other two and carrying a pointer which moves freely over a graduated scale, these coils being of low and high resistance. For testing the insulation resistance of cables, etc., some type of magneto generator is combined with the instrument.

Oil Fluid substance having a more or less viscous character and of either mineral, vegetable or animal origin. The mineral oils, consisting of hydrocarbons, are derived from the decomposition of organic matter in rocks and are represented by petroleum and its derivatives.

The vegetable oils consist of fixed or fatty oils and essential or volatile oils, the former being again divided into drying and non-drying oils. The fixed oils, composed of mixtures of glycerides of fatty acids, vary in consistence some being solid fats above 68° F., and others which remain liquid at ordinary temperatures. The drying oils undergo oxidation on exposure to light and air, forming a tough film, and consequently are used in paint and varnish manufacture, such oils are, linseed, poppy, cottonseed and rape. The non-drying oils such as olive, palm, coconut and almond oils are used as lubricants, edible oils, and in soap manufacture. Essential oils are volatile odorous liquids distilled from plants and used in pharmacy and perfumery.

The animal oils comprise fish and whale oils, seal oils, tallow, butter, etc., and are used as food or in soap and margarine manufacture or as lubricants.

For oil fuel see FUEL.

Oilcake Food given to cattle. It consists of compressed seeds, from which the oil has been expressed.

Oilcloth Type of floor covering. It comprises coarse canvas covered with successive coats of thick oil paint, each passed between heavy rollers, dried and rubbed smooth with pumicestone before the next is applied. The surface may finally receive an ornamental pattern in oil colours, derived from wooden blocks or analogous printing devices. See LINOLEUM.

Oil Palm See PALM OIL.

Oise River of Belgium and France. It rises in the Ardennes, flows through France, and joins the Seine at Conflans, St. Honorine. It is 187 m. long and about half its course is navigable. The chief tributary is the Aisne; others are the Ailette and the Buche and it passes Guise, Compiègne and other places. The Oise gives its name to a department of north-east France, of which Beauvais is the capital.

Ojibwas (or Chippewas). North American Indian tribe of Algonkian stock. The name, "roast-till-puckered," may allude to their puckered moccasins. In early colonial times they occupied the Sioux and Fox territory, W. and S. of Lake Superior, and sided with Britain in the War of Independence. They number 30,000, peaceably settled in the lake region of Canada and the U.S.A.

Okapi Native name of an African ruminant of the giraffe family (*Okapia Johnstoni*). Sir Harry Johnston discovered it in the Semliki forest near Lake Albert in 1901. It stands 5ft. high at the

shoulder, with limbs and neck shorter than the gruffs. The purplish pelt is varied on buttocks and legs with horizontal black and buff stripes.

Okehampton Borough and market town of Devonshire. About 17 m. east of Launceston. It is 198 m. from London by the S. Rly., and is situated at the junction of the East and West Okement rivers. Pop. 3450.

Oklahoma State of the United States. It is in the south of the country, lying wholly inland just to the north of Texas. Oklahoma City is the capital and the largest place: Tulsa is next in size. The chief industries are the growing of wheat, oats, cotton, etc., and the mining of oil, of which an enormous quantity is produced in the state. Government is by a legislature of two houses. The state sends two senators and eight representatives to Congress. It has a large Indian population. Pop. (1930) 2,396,000.

Olaf King of Norway and saint. Born in 995, he terrorised the coasts of Normandy and England, and secured the throne of Norway in 1016. He tried to exterminate paganism, with such severity that his subjects abandoned him for Canute, King of Denmark. Olaf fled to his brother-in-law, Jaroslav of Russia, who gave him 4000 men, and in 1030 Olaf fought Canute at Stiklestad, but was defeated and killed. He was later proclaimed patron saint of Norway.

Old Age Pension In Great Britain and other countries a pension paid by the state to all persons who reach a certain age. In Great Britain it is paid to persons, with certain exceptions on reaching the age of 70, but persons who are insured under the national health insurance scheme, and also the wives of the men, can obtain a pension on reaching the age of 65. Blind persons can claim at 50.

To be entitled to a pension at the full rate of 10s. a week, a person's income from investments and the like must not exceed £26 5s. a year, but before calculating this, he or she is entitled to deduct the first £39 of unearned income. In practice, therefore, a person can obtain a full pension if his unearned income is £65 5s. a year or less. If the income is in excess of this sum a smaller pension is paid, until a person with £88 17s. 6d. a year cannot claim one of any kind. In the case of a married couple living together these sums are doubled. Thus a man whose unearned income is under £130 10s. a year can claim a full pension for himself and his wife. To obtain a pension a person must apply for a form at a post office. The pensions are paid at the post offices every Friday. See HEALTH INSURANCE.

Old Bailey Street in London. It goes from Ludgate Hill to Newgate Street, and at its junction with the latter is the Central Criminal Court, usually called the Old Bailey. A court was built here in 1834 and in 1902-07 this was rebuilt. The hall contains mural paintings by Sir W. B. Richmond.

Oldbury Market town and urban district of Worcestershire. It is 5 m. north-west of Birmingham and 113 from London by the L.M.S. Rly. There are manufactures of hardware and chemicals. Pop. (1931) 35,918.

Oldcastle Sir John. Leader of the Lollards. He served in the fighting on the Welsh marches, where he formed a friendship with Henry, Prince of

Wales, afterwards Henry V. Espousing the Lollard cause, he had the works of Wycliff transcribed and distributed. After good service in France in 1411, he was condemned as a heretic in 1413. He escaped from the Tower, but was recaptured after four years, and hanged and burnt as a heretic.

Oldenburg Republic of Germany. Formerly it was a grand-duchy of the German Empire, comprising, besides the grand-ducal territory with a seaboard on the North Sea, the former principalities of Lübeck, north of the state of that name, and Birkenfeld, situated in the midst of the Rhine province. The capital is Oldenburg, 27 m. from Bremen, Eutin and Birkenfeld are the capitals of the other divisions of the republic. Area, 2480 sq. m. Pop. 545,200. See LÜBECK.

Oldham County borough and market town of Lancashire. On the Medlock, 188 m. from London and 6 m. from Manchester, it is a leading centre for cotton spinning and other branches of that industry. Textiles produced include satins, sateens, fustians, sheetings. There are engineering works and collieries near by. The town sends two members to Parliament. Pop. (1931) 140,309.

Old Red Sandstone Name given by geologists to palaeozoic rocks between the Silurian and Carboniferous, to distinguish them from the New Red Sandstone above the Carboniferous, now renamed. Represented in Scotland by beds of great thickness, their fossil remains attest lagoon formation. With contemporary marine deposits occurring elsewhere, as in S.W. England, they constitute the widespread Devonian system.

Old Testament Collection of 39 books of the Bible, recording Jewish history and religion from the beginning down almost to the times of Jesus Christ and his apostles. Written between the 8th and 2nd century, B.C., in Hebrew or Aramaic, the Jewish grouping, Law, Prophets and Writings, marks the stages which established the Hebrew canon. The Law or Pentateuch was canonised first, probably under Ezra, c. 444 B.C. The Prophets, all except Daniel, with Joshua, Judges, Samuel and Kings, gained acceptance, c. 200 B.C. The writings, comprising the rest, were subsequently admitted, all receiving final sanction at the Jewish synod of Jamnia, c. A.D. 90. See APOCRYPHA.

Old Trafford District of Manchester. To the west of the city. It is chiefly known because it is the headquarters of the Lancashire county cricket club.

Oleander Evergreen shrub of the dogbane order (*Nerium oleander*), native of the Mediterranean region. The erect stems bear leathery willow-like leaves which exude a poisonous milky juice when bruised. The showy clustered flowers, resembling those of the periwinkle, but rose-coloured or white, are greenhouse favourites in Britain, with double-flowered varieties.

Oleaster Genus of deciduous or evergreen shrubs and small trees (*Elaeagnus*) akin to the spurge laurel order, natives of Europe, Asia and N. America. Several ornamental species are cultivated. The common oleaster, *E. angustifolia*, 15-20 ft. high, is grown round the Mediterranean for its edible berries.

Olein Trade name for triolein, the triglyceride of oleic acid. This is a colourless oil, with almost imperceptible smell and taste, liquid above 21° F., and soluble in alcohol. With tripalmitin and tristearin, solid at ordinary temperatures, it enters into most animal and vegetable oils and fats. These are usually natural species of varying chemical composition; the so-called olein expressed from palm-oil and especially coconut oil contains various other glycerides. Much olein is converted into stearin by hydrogenation.

Oleograph Name given to a picture done in oil colours by a chromo-lithographic process, the print being mounted on canvas and varnished to imitate an oil painting.

Oléron Island of France. It is off the west coast, at the mouth of the Charente, and has an area of 66 sq. m. The chief towns are Chateau d'Oléron and St. Pierre.

Oléron is famed because it gave its name to a code of law for seamen. This consisted of the decisions of the maritime court in the island and the accepted rules of the sea. It was introduced into England in the 12th century.

Olfactory System See NOSE.

Olga Saint of Russia. "The daughter of a peasant, she married the Grand Duke Igor in 913. After the death of her husband in 945, she acted as regent for her son for a period of ten years. She went to Constantinople where she became a Christian. Olga was canonised, her feast being July 11.

Oligarchy Word of Greek origin, meaning the rule of the few. It is generally regarded as a bad form of government, the idea being that the few rule in their own interests. It was so classed by Aristotle. Since the time of the Greek states the most notable oligarchy has been the republic of Venice.

Oligocene System Geological term for the second division of the Cainozoic or Tertiary period following the Eocene system. In England these strata form an estuarine series in the Hampshire Basin and are seen well on the coast of the Isle of Wight. The system is divided into four subdivisions, the Hamstead, Bembridge, Osborne and Headon Beds, consisting of marls, clays and limestones containing marine, estuarine, freshwater and land fossils. Oligocene beds are widely distributed over central and southern Europe.

Olive Small evergreen tree typical of the olive order (*Olea europaea*). Cultivated in antiquity, it abounds in the Mediterranean region, and flourishes also in Australia, California and S. Africa. Its small fleshy berry, when unripe, is pickled or salted. The ripe pericarp yields under pressure 60-70 per cent of an edible oil which replaces in S. Europe butter and animal fats, and is used farther north for salads and various culinary and medicinal purposes. Inferior grades serve for soap-making.

Olives Mount of. Limestone ridge E. of Jerusalem. Rising about 300 ft. above the city beyond the Kidron valley, it was closely associated with the final scenes of Our Lord's life. On one of its four summits he wept over Jerusalem; some part of it, probably not the traditional summit, was the

scene of the Ascension. See GETHSEMANE, KIDRON.

Ollerton Town of Nottinghamshire. It is 9 m. from Mansfield and 139 from London by the L.N.E. Rly. and adjoins Sherwood Forest.

Olney Town of Buckinghamshire. It stands on the Ouse, 60 m. from London, on the L.M.S. Rly. The place is known for its associations with Cowper.

Olympia Religious centre of ancient Greece, famous as the scene of the Olympic games. It stands on the banks of the Alpheus in the Peloponnese. The modern Olympia is a place of amusement in London. It is in Addison Road, Hammersmith, and is used for exhibitions of all kinds. There Captain Bertram Mills has his annual circus and the Naval and Military Tournament is also held here.

Olympiad A period of four years, in Greek chronology, used for dating for literary purposes. The four years were reckoned between celebrations of the Olympic games, the first Olympiad beginning in 776 B.C. and the last A.D. 394. Timaeus of Sicily was the first writer to start using this system, about 264 B.C.

Olympic Games Athletic contests held at Olympia in Greece in ancient times. The festival took place every four years and had a religious basis. Candidates were tested at Elis and had to train for some ten months. The games were open to competitors from all Greece, and the contests included chariot racing, horse racing, running, wrestling, boxing, and the pentathlon, a contest involving jumping, quoit-throwing, javelin-throwing, running and wrestling. The list of Olympic victors goes back to 776 B.C., and the classical games ceased to be held probably about A.D. 393.

To the Baron de Coubertin a Frenchman, who organised the Games at London in 1908, much of the credit is due for those four-yearly contests. They represent a revival of the old Greek games, were first held at Athens in 1896, and have been restaged every four years since, save for a break occasioned by the war. Those in 1928 were held at Amsterdam, and those of 1932 at Los Angeles. Every branch of sport is represented, and the United States are the most successful country.

Olympus Name of a mountain range in Greece. It separates Thessaly from Macedonia and the highest point rises to about 10,000 ft. Olympus is famous in Greek legend and literature.

Omagh Market town and urban district of Co. Tyrone, Northern Ireland; also the county town. It is 34 m. from Londonderry. The industries are flour mills and linen factories. Pop. (1926) 5124.

Omaha City of Nebraska, U.S.A. On the Missouri River, it is an important railway centre. Here are railway works of the U.P. Rly. and other engineering and machinery works. Smelting and refining is carried on extensively, and there are many manufacturing industries. South Omaha, formerly a separate city, and united to Omaha in 1915, has large meat canning works. Pop. 211,750.

Oman State of Arabia. It lies on the east of the Arabian desert, a narrow strip of maritime land, bordering on the Persian Gulf, the Gulf of Ormuz and the Arabian Sea. The total coast-line is 1000 m.

in length with an area of 8200 sq. m. Its sultan, Seyid Taimur, rules over a population of 550,000. The chief port and capital is Muscat (q.v.).

Omar Successor of Mahomet. He became a follower of the prophet, and in 634 was chosen caliph in succession to Abu Bekr. He held the position until his murder in 644 and continued the policy of conversion by force, conquering Palestine, Syria and Egypt. He was called the commander of the faithful. The Mosque of Omar at Jerusalem is a reminder of his career.

Omar Khayyám Persian mathematician, astronomer and poet. He was the son of a tent maker (Khayyám). At the order of the Sultan, he reformed the Moslem calendar. His treatise on Algebra made him famous as a mathematician even in the Western world. He died A.D. 1123.

In Europe he was unknown as a poet until 1859, when Edward Fitzgerald (q.v.) translated several of his "Rubáiyát" or quatrains. The beauty of the "translation" is to be attributed more to the genius of Fitzgerald than to the original Persian.

Omdurman Town of Egypt. It is situated on the Nile opposite Khartoum in the Sudan. Here, on Sept. 2, 1898, Kitchener, at the head of an Anglo-Egyptian force defeated the Dervishes and avenged the death of General Gordon (q.v.).

Omnibus Name given to a public conveyance first introduced into London in 1829 by Shillibeer. Previous to this, stage coaches had been employed for some time for conveying passengers, and in Paris three-horse public coaches had been popular for many years. Shillibeer's omnibuses carried 22 persons inside, and were drawn by three horses, but in 1849 smaller vehicles were introduced followed by roof accommodation in 1857. Further developments came with the formation of the London General Omnibus Company, and the older type were replaced.

Omsk Town of West Siberia. It stands at the junction of the Irtysh and Om rivers, and is 265 m. from Akmolinsk, on the Trans-Siberian Railway.

Onager Name of several races of wild asses ranging from Syria, Arabia and Persia to Baluchistan and N.W. India (*Equus onager*). Standing 11 hands high, sandy or chestnut-coloured and broadly striped along the back, they are remarkably fleet-footed, being seldom run down by horsemen.

Onega Lake of Russia. The lake covers 3800 sq. m. and is the largest in Europe save only Ladoga. It is 150 m. long. Its waters are carried to Lake Ladoga and it is connected by means of canals with both the White and the Baltic Seas.

Onega River of North Russia. It rises in Lake Ladoga and flows N.E. and N.W. to the Gulf of Onega, on the south of the White Sea. It is about 240 m. long. The town of Onega is at the mouth of the river, on the bay of the same name, 84 m. S.W. of Archangel.

O'Neill Ancient Irish family. They were descended from King Niall of the Nine Hostages, who were Lords of Tyrone, and the hereditary enemies of the O'Donnells of Tyrconnel. Con O'Neill (1484-1559), was a warlike chieftain who, on making submission to Henry VIII. in 1542, was made Earl of Tyrone. Shane O'Neill, born about 1530, the eldest legitimate son of Con, was second earl,

and nominally paid allegiance to Elizabeth, but fought against the Scots, and continually against the O'Donnells. He died in 1567.

Hugh O'Neill, the son of an illegitimate son of Con, born about 1540, succeeded to the title in 1587, but intrigued with the Irish rebels and with Spain against Elizabeth. He was defeated at Kinsale by Mountjoy, and made submission, but later intrigued against James I. with Spain, and in 1607 fled to Rome, and died there in 1616.

Owen Roe O'Neill, born about 1590, went to Spain, and fought in the Spanish army with distinction, later coming to Ireland in 1642, when he fought against Scotland and England with great success, until his death in 1649.

Phelim O'Neill was the leader of the insurrection against the English and Scots settlers in Ulster, in which occurred the Ulster massacre of 1641.

O'Neill Eugene Gladstone. American dramatist. Born in New York Oct. 16, 1888, he tried commerce, the sea and other callings before he began to write. He went to Harvard University, 1914-1915, and in 1916, spent the summer at Provincetown, where he met the group who produced nearly all his short plays. He rapidly became the most famous of the younger American dramatists. He has written, *Beyond the Horizon* (1920), *Anna Christie* (1922), *Emperor Jones* (1922), *The Hairy Ape* (1922), *The Great God Brown* (1926), and *Strange Interlude* (1928), amongst others.

One Thousand Guineas

English horse race. It is an event of the Newmarket spring meeting, and is open to three year old fillies.

Ongar Market town of Essex, known officially as Chipping Ongar. It is 23 m. from London by the L.N.E. Ry., and is situated on the Hodding. Pop. 10,140.

Onion Hardy bulbous biennial herb of the lily order (*allium cepa*). It is now widely grown for culinary purposes, usually raised annually from seed. Some forms are produced for pickling, some for storing. The potato onion is a variety throwing out lateral bulbs developed underground. The Welsh, a bulbous form of Siberian origin introduced into mediæval Europe, is grown for spring salads. See LEEK, SHALLOT.

Ontario Lake of North America. One of the Great Lakes, it is the smallest of the five, covering 7260 sq. m. It is also the most easterly and the lowest of the five. The waters of Lake Erie are brought to it by the Niagara River and the Trent, Oswego and other rivers enter it. Its waters go to the St. Lawrence. Canals connect it with the important waterways of Canada and the United States. The lake is 185 m. long; its northern shores are Canadian and its southern, American. On the former are Toronto, Hamilton, Kingston, Oshawa and some smaller ports. On the latter are Oswego and Charlotte.

Ontario Province of Canada. With an area of 407,262 sq. m., it extends from Detroit, U.S.A., to Hudson Bay, and includes part of Lakes Ontario, Erie, Huron and Superior, which separate the province from the U.S.A. The area known as the Lakes Peninsula is the most thickly settled region. It has the greatest output of any province in manufactures (the chief industry), mining and agriculture, the principal crops including, besides grain, apples, grapes, peaches and other

fruit, tomatoes and tobacco. Gold is the most valuable metal mined, and the province produces silver and copper in large quantities and dominates the world's market for nickel. Petrol is also found. There are very large timber resources. Plentiful electric power is obtained from Niagara and other natural sources. Toronto on Lake Ontario is the capital of the Province; Ottawa is the Dominion capital; London and Hamilton are the chief towns. Pop. 3,426,488.

Champlain (q.v.) was the first European to visit Ontario, followed by Jesuit missionaries and fur traders. It became British in 1763 and in 1774 became part of the province of Quebec. In 1792, however, it was separated from Quebec, becoming the province of Upper Canada with its own legislature. John Graves Simcoe (q.v.) was the first governor. Little development took place until after the war of 1812, when the Americans took and burned the capital, York (now Toronto). Following a rebellion in 1837-38, it was once again united with Quebec under a common parliament in 1842, remaining thus till the achievement of Confederation in 1867. Since then the province has been governed by its own legislature of 112 members under a lieutenant-governor, assisted by an executive council.

Ontology Name given to a branch of metaphysics dealing with the nature and principles of pure being and the essence of things, or, as defined by Hegel, the doctrine of the abstract characteristics of being. The different problems of ontology are concerned with such theories as those of monism, dualism and pluralism.

Onyx Name given to certain kinds of agate in which there is a parallel banded structure, the milky white layers alternating with dark or coloured chalcedony. Owing to this structure onyx is used for cameos, the white later being cut in relief upon the darker material. In the sardonyx the coloured bands are red, consisting of carnelian or sard.

Onyx marble is a stegomitic form of marble from Mexico, S. America and Algeria, used as an ornamental stone.

Oolite Geological term for the upper and middle divisions of the Jurassic system. The Oolite consists of hard limestones alternating with sands, sandstones and calcareous clays and containing chiefly marine fossils. It is divided into Upper, Middle and Lower Oolite, which stretch across central England from Dorset to Yorkshire, and yield many important building stones such as the Portland, Purbeck and Bath stones.

Oology Name given to a specialised branch of ornithology dealing with the study of the eggs of birds, especially with regard to the methods of collection; also the study of their shapes, markings and colouration, characters which are of importance as a means of identification.

Ooze Name given to organic deposits occurring on the floor of the ocean basins. An ooze is almost entirely composed of the remains of minute organisms and is more plastic and coherent than muds. The best known of the oozes is the globigerina ooze of the Atlantic Ocean, consisting of the remains of foraminifera.

Opal Mineral consisting of hydrated silica and occurring in non-crystalline form as layers, nodules, stalactitic masses, or filling cavities in rocks. It has a greasy

lustre and hardness lower than that of quartz, while the colour of common opal is bluish-white, milky or yellowish. In the precious opals there is a remarkable play of colours due to reflection and diffraction of light from thin laminae.

Opera Virtually drama set to music. After early pioneer attempts, the *Euridice* of Peri (1600) must be considered as the forerunner of opera. Early writers of opera were mainly German and Italian, as for example, Mozart, Monteverde and Rossini, but France owes its earlier operas to Méhul and Meyerbeer, and England to Purcell. With Wagner (q.v.) the opera actually became a distinct genre of music, and those to follow this more dramatic style were Bizet (*Carmen*), Strauss and Debussy (*Pelléas*). To Sir Thomas Beecham's efforts to put it on a firm footing, we owe the presentation of works by Dame Ethel Smyth, Vaughan Williams, Holst and Boughton. Other modern writers of opera include Stravinsky and Puccini. The various forms of opera include Recitative (often introductory), Opera-Buffer (Italian comic opera with recitative), comic opera and grand opera, where every word is sung.

Ophir Country mentioned in the Old Testament. It was famous for its gold which was brought to Jerusalem in the time of Solomon. It was probably in Africa.

Ophthalmia Inflammation of the eye, brane in front of the eyeball and inside the lids. New-born babes are liable to purulent ophthalmia, sometimes epidemic among school children. Sympathetic ophthalmia is inflammation of one eye consequent on disease or injury of the other. General eye hospitalitis are often called ophthalmic.

Ophthalmoscope Instrument introduced by Helmholtz in 1851 for examining the interior of the eye by means of reflected light. There are several forms, but the one commonly used consists of a small concave mirror of 10 ins. focus, pierced with a central hole, and having a series of lenses attached.

Opium Narcotic drug consisting of the dried latex obtained by incision of the walls of the unripe capsules of the white poppy (*Papaver somniferum*). The latex which rapidly coagulates, is scraped off and dried in the sun, forming dark brown masses. Opium contains the alkaloids morphine, codeine, narcotine and narcaine, each of which is used in medicine as a sedative. The opium poppy is grown in Asia Minor, Persia, India and China. In 1928, an international convention came into force to suppress the illicit traffic in opium and other narcotic drugs.

OPIMUM—EATING AND SMOKING—When eaten or smoked as a narcotic, the first effect of opium is a pleasant stimulation of the mental activity, followed by sleep. The after-effects are unpleasant and harmful, and the opium habit, once acquired, is very difficult to relinquish. The opium produced in India and consumed in China formerly provided one of the main sources of Indian revenue.

Oporto Seaport of Portugal. On the north bank of the Douro, it is 209 m. from Lisbon by rail. Oporto is the centre of the port wine trade, and is also a great manufacturing district, producing textiles, paper and pottery. There are tanneries, distilleries and sugar refineries. The

shipping is handled by the harbour at Lelxuoos, four miles north. Pop. 215,620.

Opossum Family of American marsupial mammals. They inhabit central and S. America except the largest, the cut-sized Virginian opossum, which ranges northwards. The pouch is sometimes rudimentary or wanting, the tail often long, scaly and prehensile. They are nocturnal and arboreal, except the web-footed yapok or water-opossum. Australian phalangers are also called opossums.

Optician Name of a trade concerned with the manufacture and sale of lenses and optical instruments such as telescopes, microscopes, spectacles, etc., also one branch of the trade which specialises in the testing of eyesight and prescribing suitable spectacles. The work presupposes a training in the principles of optics and the practical application of the science especially in the cutting and grinding of lenses. For sight-testing a knowledge is required of refraction in relation to eyesight, and the methods adopted to overcome errors of refraction.

Optics Term applied to the science of light and the principles underlying the various phenomena of light and vision. The science is divided into two main divisions, physical and geometrical optics. In physical optics a study is made of the nature of light and the phenomena of colour, refraction, reflection, interference, diffraction and polarisation, while geometrical or mathematical optics is concerned with the laws governing these phenomena, the formation of images and the principles underlying lenses, etc. The Greeks and later the Arabs were conversant with the laws of reflection, but the science did not assume its present form until the days of Kepler, Newton and Huyghens.

Optophone Name given to an instrument invented by Pournier D'Albe for changing light rays into their equivalent sounds for use by the blind in reading books. The instrument consists essentially of a revolving disc having eight holes proportional to the vibrations of the notes of an octave. Light directed upon the printed page is interrupted and passes through the apertures of the disc on to a selenium tablet connected with a telephone receiver, each letter being heard with a characteristic sound.

Oracle Response, supposedly divine, given by an inspired priest or priestess to the inquiry of a votary, or the sacred place of utterance itself. As a ritual of divination, oracles profoundly influenced public life in ancient Greece, the most renowned being those of Zeus at Dodona and Apollo at Delphi. At the latter the attendant priests communicated in hexameter verses the utterances of a young woman seated on a tripod over a cave from which a vapour arose.

Oran Seaport of Algeria. It is on the Gulf of Oran, 260 m. from Algiers by railway. A naval station, it is the capital of the department of Oran. Wine and grain are exported, and the production of esparto grass, a raw material of paper manufacture, is important. Cattle and minerals are shipped, also hides and cork. Pop. 150,300.

Orange French family settled in the Netherlands. It takes its name from the town of Orange which was the capital of a little state. In 1500 this came to a member of the family of Nassau who had lands in the Netherlands and were known as the House of

Orange-Nassau. William the Silent and his descendant who became William III. of Great Britain belonged to this family. Another branch is now represented by the Queen of the Netherlands.

Orange Fruit of an evergreen tree (*Citrus aurantium*). Emanating from the Indo-Chinese peninsula, and cultivated in ancient India, Arabs introduced it into S.W. Asia before the 8th century, and thence into Spain. Its introduction from the Levant into 15th century Italy preceded its importation direct from the East into 16th century Portugal. It is now cultivated in many localities outside the Mediterranean region, including S. Africa, the W. Indies, Florida, California and Australia. The sweet or China orange occurs in many forms, including Malta blood-oranges and flattened thin-peeled mandarins and tangerines. It is a valuable food, being rich in mineral salts and vitamins A, B, and especially C. See CURRUA.

Orange Town of New South Wales. It is 190 m. by railway from Sydney, and is the centre of a district where wheat and fruit are grown. Pop. (1926) 7947.

Orange River of South Africa known also as Gariep or Groote River. Rising in the Drakensberg Range, Basutoland, it flows 1300 m. to the Atlantic, which it reaches 45 m. N.W. of Port Nolloth. Its principal tributary is the Caledon, about 200 m. long. During part of its course, the Orange River constitutes the north boundary of Cape Province.

Orange Free State Province of the Union of South Africa. It has an area of 49,647 sq. m., and joins Cape Province on its West and South borders, Natal and Basutoland on the East, and the Transvaal on the North. Bloemfontein is the capital (pop. 38,870), on the Modder River. The province has a pop. of 628,900, Europeans numbering about 188,500. The Cape to Cairo Railway runs through the province. In 1899 the Orange Free State joined with the Transvaal in the war against Great Britain. Annexed by the latter in 1900, and named the Orange River Colony, in 1910 it entered the Union of South Africa and resumed its earlier name, which dated from the proclamation of an independent republic in 1854, when British sovereignty terminated.

Orange Society Irish political society. Founded in 1793, the first lodge was formed at Armagh, and the movement spread rapidly, gaining adherents in England and elsewhere. The professed objects were the defence of the Protestant faith and succession. The society was named after William III. It drew upon itself Parliamentary action at different times. See IRELAND.

Orang-Utan Malay name, "man of the woods," of the reddish-brown manlike ape of Borneo and Sumatra (*Simia satyrus*). Powerfully built, standing 4 ft. 4 in., when erect the long arms almost touch the ground. This and other anatomical characters render it less manlike than the gorilla and chimpanzee. The males often have warty cheek callosities and enormous pouch-like neck distensions. Inhabiting low-lying forests, which they traverse from tree to tree, they construct family sleeping-platforms 20-50 ft. above the ground. They subsist mainly on fruits.

Oratorians Familiar term applied to Roman Catholic Congregations of the Oratory. That of S. Philip Neri, founded in a hall or oratory in Rome, in 1564, received papal sanction in 1575. It comprises simple priests under no vows. J. H. Newman, becoming an Oratorian in Rome, founded in England the Edgbaston Oratory, 1847; the Brompton Oratory, with F. W. Faber as first rector, followed. The Oratory of our Lord Jesus Christ, founded by Cardinal de Berulle in Paris, 1611, was overthrown at the Revolution; another arose, 1852.

Oratorio Sacred counterpart to secular opera. Originally, as devised by S. Philip Neri, and used in his Little Oratory about 1574, oratorio was a dramatic representation of sacred history (with scenery and costumes) used as a devotional exercise. The oldest surviving Italian example is Cavaliere's "The Soul and the Body" of 1600. In Germany, as a congregational devotion, oratorio survived and flourished after the Reformation. Schutz's "The Resurrection" in 1585 founded a tradition which culminated in the masterpieces of Bach. Bach's "Christmas Oratorio" and "Passion Music" dispensing with theatrical properties, combined solos, chorus, double chorus, orchestra and congregation into a musical and devotional whole. With Handel began the era of oratorio as a musical entertainment. Handel, Haydn, Mendelssohn and Elgar are the greatest composers in this form.

Orbit Term used in astronomy to denote the path of a celestial body in the heavens, as for example, the earth's, whose annual orbit round the sun is elliptical in form.

In zoology the term orbit is applied to the bony cavity containing the eye in vertebrate animals and arched over above the skull. In some mammals the orbit is enclosed completely by bones as in the primates, but in other types the back of the cavity is less ossified.

Orchardson Sir William Quiller. Scottish painter. Born at Edinburgh, March 27, 1832, his work was exceptionally quiet in colour, and it was some time before he became popular. Among his more popular works are, "On Board H.M.S. *Bellerophon*" (1880), (In the Tate Gallery) "Marriage de Convenience (1884), "After" (1886), and "The Young Duke" (1889). He was elected A.R.A. in 1868, R.A. in 1877, and knighted in 1907. He died April 13, 1910.

Orchestra Term applied originally to the central circular space in the ancient Greek theatre and used for dancing by the chorus. Later the orchestra became semi-circular and in Roman theatres, choric dancing being no longer in fashion, it was merged into the stage. In more modern times the term has become applied to the band of musicians.

Orchid Herb of an extensive natural order of plants with one seed-leaf, growing in all climates except the very cold. Orchids comprise many genera, with 5000 species, some terrestrial, with fleshy or tuberous roots, some growing on other plants, with pseudo-bulbs. Many, perhaps all, have a specific partner-fungus or mycorrhiza essential to the orchid's growth. The one or more flowers have perianths of six coloured segments, that forming the lip being sometimes spurred. Transfer of pollen by insects from one plant

to another for cross-fertilisation is secured by various ingenious mechanisms. About 40 species are British, including the bee orchis, twayblade, and lady's-slipper. See VANILLA.

Orczy Baroness Emmusca. Pen name of Mrs. Montagu Barstow, novelist and playwright. Born at Tarnobors in Hungary, she was educated at Brussels and Paris, and began writing in 1900 with *The Old Man in the Corner*, a series of detective stories. In 1905 she wrote *The Scarlet Pimpernel*. Two other plays appeared in 1910 and 1918, *Beau Brocade* and *The Legion of Honour*. She is the author of numerous novels, several being sequels to *The Scarlet Pimpernel*, which has been dramatised.

Ordeal Form of trial for detecting guilt or innocence. In primitive culture an aspect of divination, administered under priestly direction and relying upon Providence, mediæval Europe called it the judgment of God. Tests of innocence by ordeal are exemplified in Num. v., and incidentally in Dan. iii. Early England recognised ordeals by hot iron, boiling water, plunging into a stream to sink or swim, consecrated bread and personal combat. Trial by ordeal ceased in 1218, except by combat, which lasted until 1818.

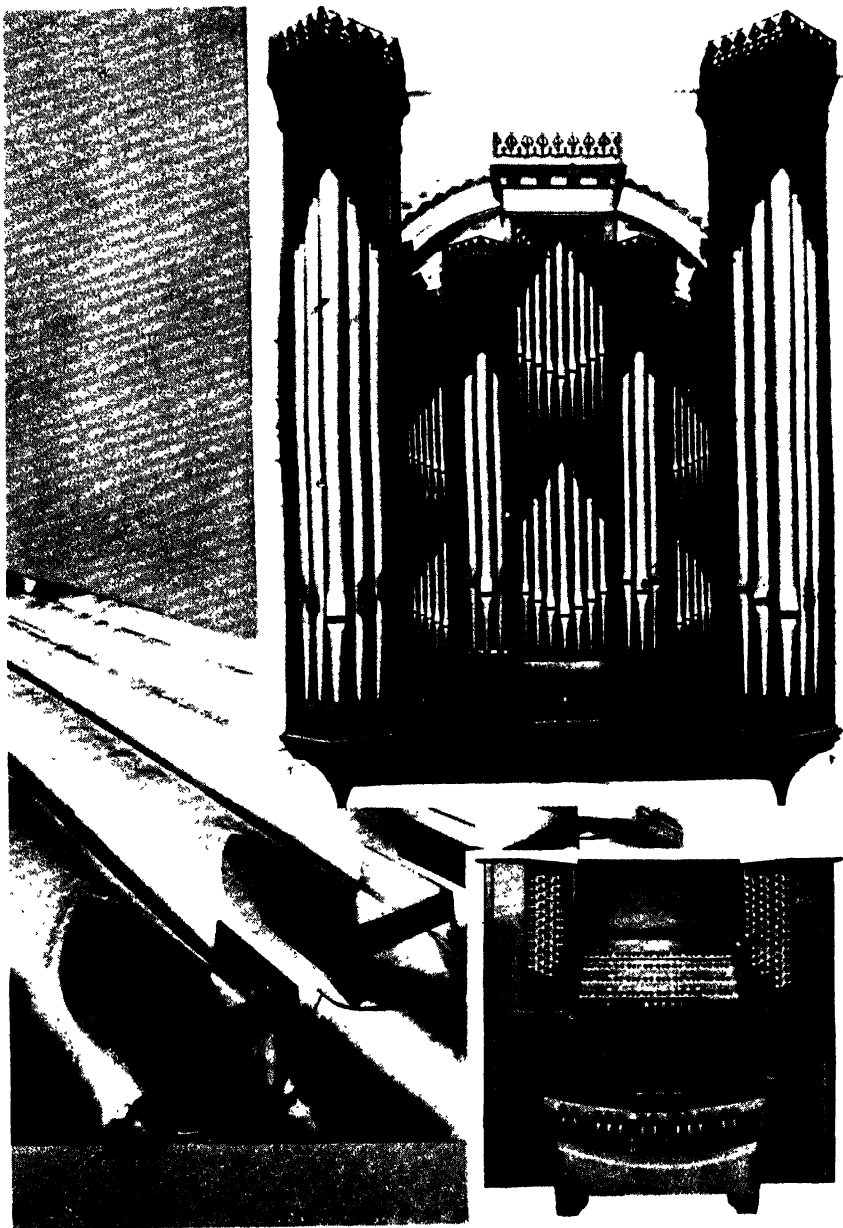
Order-in-Council In Great Britain and other parts of the British Empire an order issued by the sovereign on the advice of the Privy Council. They were first used in the 18th century, and are of two kinds. Some are issued when great urgency is essential, as during a war or a general strike, when there is not time to pass legislation through Parliament. More usually they are issued to carry out the details of legislation. Acts are often passed giving powers to ministers to do certain things, for instance, raise the school age or prohibit the export of old horses by Order in Council.

Ordinance Decree or order that is not strictly speaking a law. Such were issued by the kings of France, and in England in the time of Charles I. the Long Parliament passed the Self-Denying Ordinance. These ordinances, although not fully laws, had the force of law.

Ordination Ecclesiastical ceremony. It is the special service for the setting apart of Christian ministers to their life-work. In the Greek, Roman and Anglican churches the rite is carried out by a bishop, and is regarded by the two former as sacramental. In the Free Churches it is administered by one or a number of senior ministers. In each case ordination is by "laying on of hands" in conformity with the New Testament (Acts vi., 1-7; xiii., 1-4).

Ordnance General term for all kinds of cannon or other forms of firearms (other than small arms) and their ammunition. It was used originally to include the organisation as well as the equipment of artillery and its staff. The ordnance department in the army is charged with the provision, care and distribution of military stores, arms and ammunition as well as the miscellaneous equipment of the army. For the training of officers for these duties there is an Ordnance College at Woolwich. A similar Ordnance Department is established for naval purposes, to provide and maintain armaments for ships.

The Ordnance Survey is a topographical survey of Great Britain for the preparation of official maps of the country, and is carried out by the Royal Engineers, with headquarters



THE ORGAN IN PETERBOROUGH CATHEDRAL.—Showing (*above*) the case-work and (*inset*) the modern all-electric four manual console.

[Vandyk

at Southampton. The original maps were on a scale of 1 in. to the mile, but later a 6 in. survey was started, followed by maps on a scale of 6 ins. and 25 ins., also 5 ft. and 10 ft. to the mile. The maps in most general use are on the 1 in. scale and are issued in 3 forms showing the contours, etc., either uncoloured, or in relief and hatchings in colour.

Ordovician Word used by geologists for a formation in the earth's crust between the Cambrian and the Upper Silurian. Found in Europe, Asia, and the Americas, it contains iron, lead, silver and other minerals, as well as the fossils of the less developed forms of life and of fishes. The stones found include shales, limestones, grits and slates. The formation is best seen in Wales where it is in three divisions known as Arenig, Llandoello and Bala.

Ore Term used in mining for mineral deposits containing metals in sufficient quantity for profitable extraction. Metals occur in ores as oxides, sulphides, carbonates, silicates, etc., and in a few in the metallic state, such as gold, platinum, iridium, silver, mercury and copper. Ores occur either in veins or lodes, beds, irregular masses or pockets, or superficial deposits, and before they are ready for smelting or other methods of extraction, they usually undergo considerable treatment or "oro dressing." See **Lode**.

Ore Coin of Norway, Sweden and Denmark. It is a one-hundredth part of the krone and is coined in both bronze and silver, the silver coins being 5, 10, 25 and 50 ore pieces.

Oregon State of the U.S.A. On the Pacific coast, it is 96,099 sq. m. in area. West of the Cascade Range is a fertile valley region drained by the Willamette, Rogue and Umpqua Rivers, and separated from the Ocean by a coastal range. East of the Cascade Range is a prairie region with many peaks. Other rivers are the Snake (E.) and Columbia (N.), constituting the frontiers to some extent. Agriculture, cattle raising, lumbering and fisheries are the main industries, and mineral deposits comprise coal, iron, copper, silver, nickel and gold. The capital is Salem, and the principal commercial city Portland, both on the Willamette River. Pop. (1930) 953,786.

Orestes In Greek legend, son of Agamemnon and Clytemnestra. When his father, returned from the Trojan War, was murdered by his mother and her paramour Aegisthus, Orestes' nurse, or his sister Electra, saved him from a like fate. Returning to revenge his father's death, he escaped to the Tauric Chersonese with his friend Pylades, to seize the heaven-sent statue of Artemis. They were shipwrecked, but were saved by his sister Iphigenia (q.v.). He is the hero of tragedies by Aeschylus and Euripides.

Orford Village of Suffolk. It is near the coast, 20 m. from Ipswich. An object of interest is the ruined Norman castle. Orford Ness is a cape on the coast near by with a lighthouse.

The title of Earl of Orford was borne by the family of Walpole and earlier by the family of Russell. In 1697 the sailor, Edward Russell, was made Earl of Orford, but the title became extinct when he died in 1727. In 1742 Sir Robert Walpole was made Earl of Orford, but the title again became extinct when his noted son, Horace, died in 1797. In 1806 Horatio, Baron Walpole, a kinsman, was created Earl of Orford. The earldom became extinct in 1931.

Organ Complex musical instrument. Originally a syrinx, the early organ became "a box of whistles," consisting variously, or in combination, of stopped, open and reed pipes, and later adding a wind chest. It was played by the lips and breath of one performer. Next came the pneumatic or hydraulic organ with bellows worked by hand or by the weight of boy assistants. Its pipes were of copper. The first key-boards were really systems of levers which were struck with the fists, or forearms of the player. Present-day pedals and reed-pipes first appeared in the 15th century. Modern organs consist of: (1) Pipes (flue and reed); (2) Bellows, wind-trunks and wind-chest; (3) The Console (including manuals, pedals, stops, swell pedal, great swell, choir, solo, echo, couplers and accessories); (4) The Action (comprising the tracher, pneumatic, electric and connecting mechanisms). To modern cinema organs are added stops registering orchestral and naturalistic effects.

Oriel Architectural term applied to a bay window in a Tudor or Gothic building, either on the ground floor, or projecting from an upper floor, in this case supported on corbels. Many examples of oriel windows are seen in manor houses of the Tudor period and at Christ's College, Cambridge.

Oriel College, Oxford, takes its name from a tenement, La Oriole, granted to the college in 1327.

Orient Region where the sun rises i.e., the east. The word denotes more specifically the geographical region E. and S.E. of Europe, including Turkey, Persia, India and China, whose inhabitants are collectively called Orientals.

Orientation Setting of a building or person with reference to the compass points. It refers especially to the placing, at the E. end, the main entrance, as in ancient Greek and other temples, or of the altar, as in various Christian churches after the 6th century.

Origen Greek father of the church. Born at Alexandria, of Christian parentage about A.D. 185, he himself taught in the catechetical schools at 18. His learning was such, especially on the philosophical side, that he influenced the course of church history for centuries, formulating its dogmas and founding Biblical criticism. He suffered at intervals during the imperial persecutions, and died at Tyre about 254. His works include *Hexapla*, the first polygot of the Old Testament, and a defence of Christianity against Celsus.

Original Sin Corruption of man's nature inherited from Adam's fall. This doctrine, generally accepted in 5th century Western Christianity under St. Augustine's guidance, asserted the need of baptism for remission of sins, and of divine grace for attaining goodness. It was confirmed by the Council of Trent. Actual Sin is defined as the individual's voluntary act. See **Sin**.

Orillia Town of Ontario, Canada. On Lake Couchiching, 86 m. from Toronto, it is a summer resort. There are foundries, motor vehicle works, and an important industry is the manufacture of agricultural implements. Pop. 7700.

Orinoco River of Venezuela. Rising in the Parima Mts. on the Brazilian border, it flows round the range, and thence East to the Atlantic, following a course of about 1500 m. and reaching the sea near

Trinidad. A tributary, the Cassiquiare, communicates with Rio Negro, a tributary of the Amazon. Other rivers entering the Orinoco are the Apure, Guaviare and Meta. Between the two last are the falls of Maimures and Atures.

Oriole Family of perching birds, natives of temperate and tropical regions of the Old World. The golden oriole, *Oriolus galbula*, 9 ins. long, with brilliant male yellow plumage and black wings and tail, is a regular spring visitant to Britain, formerly breeding there; it now breeds in Europe and S.W. Asia, spending the northern winter in S. Africa.

Orion In Greek mythology, a handsome giant and hunter. Clearing Chios of wild beasts for its king, Oenopion, whose daughter he desired, he was inebriated and blinded, regaining his sight when confronting the rising sun. He was slain hunting in Crete in company with Artemis, and became the constellation bearing his name. This, mentioned in the Old Testament, is a conspicuous constellation near the equinoctial line, containing, among others, three brilliant stars forming Orion's belt, and a majestic nebula.

Orkneys Group of islands forming a county of Scotland. Separated from the mainland by the Pentland Firth, they number 68, with a total area of about 370 sq. m. Less than half are inhabited. The largest is Pomona, on which are the capital, Kirkwall, and Stromness. The most important islands in the group are Hoy (parted from Pomona by Scapa Flow), N. and S. Ronaldshay, Flotta, Stronsay, Rousay, Westray, Shapinsay, Eday and Sanday. Fishing and agriculture are the chief pursuits. Pop. (1931) 22,075.

Orlando Vittorio Emanuele, Italian statesman. Born in Sicily, Mar. 19, 1860, he became Professor of Constitutional Law at Palermo, and in 1916 was Minister of the Interior. He was criticised for his leniency with pacific agitators, and changed his policy. In 1917 he succeeded Boselli as Premier, and raised Italy to a pitch of high enthusiasm and strong resistance, in spite of the disastrous defeat of General Cadorna at Caporetto. He was one of the "Big Four" at the Paris Peace Conference in 1919, and seceded from it on the Fiume question, but returned with a compromise, and helped with the Yugoslavian question. On the growth of Fascism, he retired from politics.

Orleans French town. Chief town of the department Loiret, it stands on the right bank of the Loire. The cathedral (begun in 1601) is one of the noblest Gothic edifices in the country. In May, 1429, Joan of Arc defeated the English under the Duke of Bedford and raised the siege of the town. Her house may still be seen there as well as three different statues of the heroine. Orleans manufactures hosiery, cotton, etc., and receives some commercial importance from the canal which joins the Loire and the Seine. Its Roman name was Civitas Aureliani. Pop. 70,611.

Orleans House of. French noble family of royal blood. The title Duke of Orleans was created by Philip VI., who conferred it on his natural son Philip in 1344. On the accession of the third Duke to the throne in 1498 as Louis XII., the title lapsed. It was next held by Jean Baptiste Gaston, a son of Henry IV. who received it from his brother Louis XIII. in 1626. On his death, it was not revived till Louis XIV. conferred the

dukedom on his brother Philippe in 1680. The latter's grandson, of the same name, who succeeded to the title, was regent of France during the minority of Louis XV. Louis Philippe Joseph (1747-93) a man of liberal views, acquired in England through his friendship with the Prince of Wales (afterwards George IV.), joined the *tiers état* at the head of the seceding noblemen, but perished by the guillotine. Henri (1867-1901) was a distinguished traveller and explorer. Louis Philippe Robert (1869-1926) was born in England and served with the British army in India.

Orme's Head Great. Rocky promontory near Llandudno in Caernarvonshire. It is 679 ft. high and the top is reached by a cable tramway. A marine drive has been constructed round the cliffs. On the hill are St. Tudno's church, a 15th century building, and a lighthouse.

On the other side of Llandudno is Little Orme's Head, famous for its caves.

Ormolu Name given to an alloy resembling gold in colour and composed of copper, tin and zinc, the first metal predominating. It is used for making statuettes and clocks, also as a metal base for a form of champlevé enamel work. The name ormolu is sometimes used as a general term for gilded articles.

Ormonde Duke of. Irish title held by the family of Butler. James Butler was born in 1610, and succeeded to the earldom of Ormonde in 1632. He distinguished himself in the service of Charles I., and was rewarded with the ducal title of Ormonde at the Restoration. Colonel Blood tried to take his life in 1679, but he escaped, and lived until 1688. James Butler, second Duke of Ormonde, grandson of the above, was born in Dublin in 1665. He commanded William's life-guards at the Battle of the Boyne, and in 1702 commanded the troops in Rooke's expedition to Cadiz. He was Lord-Lieutenant of Ireland in 1703, and in 1711, commander-in-chief against France and Spain. Impeached in 1715 for high treason against George I., his estates were attainted, and he spent the rest of his life in France intriguing for the Pretender, until his death in 1746.

Ormskirk Market town and urban district of Lancashire, 12 m. N.E. of Liverpool and 209 from London by the L.M.S. Rly. Its industries include the making of gingerbread and market gardening. Pop. (1931) 17,121.

Ormuz Name of the strait that connects the Persian Gulf with the Gulf of Oman; also the name of an island in the strait. In the 4th century a city was founded on this island and became very prosperous as the meeting place of great trade routes. In 1515 the Portuguese took it and in 1622 it was seized by the Persians, aided by an English force; about this time its importance declined and it no longer exists.

Ormuzd Aryan deity. In the teaching of Zoroaster, this god, under the name of Ahura Mazda, is regarded as the principle of good in opposition to Ahriman (*q.v.*) the principle of evil. The dualism is only apparent, for the final victory of Mazda over the forces of evil is assured. "Zoroaster," says Dean Inge, "is to all intents and purposes a monotheist."

Ornithology Systematic study and knowledge of birds (*q.v.*).

It deals with the classification of birds, their habits, migrations, economic uses, etc. Societies devoted to the study or culture of birds include the American Ornithologists' Union, Washington, D.C., the British Ornithologists' Union, London, and the Avicultural Society, London. These publish quarterly or monthly journals. There are also societies for the protection of birds, provision of bird sanctuaries, etc.

Ornithorhynchus Generic name of the duck-billed platypus or water-mole, a mammal restricted to S. and E. Australia and Tasmania. It forms with the echidna (*g.v.*) the lowermost mammalian order, distinguished by having a single outlet for both solid and liquid excretions, as in birds. Although it is usually described as egg-laying, some authorities question whether the eggs are hatched within or without the body of the female. See DUCK-BILL.

Orontes River of North Syria. Other names are Axios and Nahrel Asi. Rising in the Anti-Lebanon, it flows 250 m. to the Mediterranean, passing near Antioch and entering the sea 40 m. N. of Latakia.

Orpen Sir William. British artist. Born in County Dublin, Nov. 27, 1878, he was educated at Dublin Metropolitan School of Art and the Slade School. He was President of the International Society and several other Art Societies. During the Great War he was appointed an official artist, and in 1918 he held a great exhibition of his war pictures, many of which he presented to the nation. Elected A.R.A. in 1910 and R.A. in 1919, he was perhaps best known as a portrait painter. He wrote *An Onlooker in France* (1921) and *Stories of Old Ireland and Myself* (1924). He died Sept 29, 1931.

Orpheus In Greek legend, son of Oeagrus, King of Thrace, and the muse Calliope. He played so exquisitely upon a lyre presented by Apollo as to charm all Nature. He accompanied the Argonauts on their quest of the Golden Fleece, wedded the nymph Eurydice, and followed her to Hades, but failed to bring her back to earth. His constancy to her memory so angered the Thracian women that they slew him. His lyre, carried to heaven, was placed among the stars.

Orpington District of Kent. It is 9 m. from Sevenoaks and 5½ m. from Chislehurst, on the S. Rly. It is a fruit-growing district. Pop. 7047.

Orpington fowls were originated by W. Cook, and are excellent utility birds, big in frame, good layers and sitters, and good table birds. The varieties are: white, black, buff, spangled, blue, cuckoo and jubilee. See POULTRY.

Orrell Urban district of Lancashire. A centre of the cotton industry, it is 3 m. from Wigan and 199 from London, by the L.M.S. Rly. Pop. (1931) 6957.

Orris-Root Rhizome, or underground stem, of various species of iris, which when dried has a delicate violet-like smell. It furnishes so-called essence of violets, "violet-powder," and some scented dentifrices; it has medicinal and breath-sweetening uses also. Exported from N. Italy and Mogador, the best comes from the Florontine iris.

Orsay Comte d'. French dandy. The son of General d'Orsay, he was born at Paris in 1801, and was for 20 years the intimate friend of Lady Blessington, the English author, and friend of Lord Byron. An authority on fashion and a brilliant conversationalist, he

also showed talent as a painter and sculptor. He was a friend of Louis Napoleon (Napoleon III.) who made him Director of the Beaux Arts at Paris before his death in 1852.

Orthoclase Mineralogical name for potash felspar, a common rock-forming mineral consisting of silicate of aluminium and potassium. It occurs in monoclinic prisms of a lustrous white, grey or reddish colour in granites and other crystalline igneous rocks. Its pearly variety, moonstone, and the spangled variety, sunstone, are cut *en cabochon* for use as gem stones.

Orthodoxy Term meaning "right opinion." It denotes soundness of belief, especially religious. It involves the formulation of a standard generally accepted. Protestant orthodoxy is deemed heterodox by Roman Catholics. The Eastern Church claims the title of Holy Orthodox Apostolic Church.

Orthography Art or practice of writing words with the proper letters according to accepted usage. The same applies to the representation of tones and effects in proper musical notation. In draughtsmanship it denotes the geometrical representation of a building's elevation or of a section through it.

Orthopaedic Surgery Branch of medical science dealing with deformities. Modern methods owe much to the developments during and after the Great War, when constructive operations and repairs to soft tissue and bone were so frequently necessary. Special mechanical instruments, which have been developed, enable excisions to be made and material for renewal purposes to be applied with comparatively little serious shock to the patient. The use of X-rays is an important adjunct.

Ortolan Species of bunting (*Emberiza hortulana*). It spends the summer in Europe and W. Asia, wintering in Africa. The male, 6½ in. long, is attractively plumaged. Hardly ever visiting Britain, it acquired repute among 18th-century epicures, and is still netted in S. Europe during its southward migration, and fattened on grain for the table.

Orwell Estuary of the river known as the Orwell, or the Gipping. The river rises in the N. of Suffolk and flows past Ipswich to the North Sea.

Osaka City of Japan. It stands on the bay of the same name at the mouth of the River Yodo. Numerous canals and steamers ply between Osaka and Kobe, for which the harbour was constructed. It has an electric railway service, and its industries include sugar refineries, iron works, cotton spinning mills, as well as a trade in tea, rice, etc. Among its buildings are the university, arsenal, and Shinto and Buddhist temples. The most populous city of Japan, its boundaries were extended in 1915. Pop. 2,500,000.

Osborne Judgment Judicial decision of the House of Lords. It was given on Dec. 21, 1909, in the case of W. V. Osborne against the Amalgamated Society of Railway Servants, after the decision of the King's Bench had been reversed in the Court of Appeal. The judgment declared void a Trades Union rule, which provided for an enforced levy from its members towards the payment of M.P.'s salaries, and dealt a blow at the political activities of the Trade Unions. See TRADE UNION.

Oscar Name of two kings of Norway and Sweden. Oscar I., born in 1799, was the son of General Bernadotte, who afterwards became Charles XIV. He became king in 1844 and established the freedom of the press but refused reform of the obsolete constitution. In 1848 he supported Denmark against Germany and was one of the guarantors of the integrity of Denmark. He died July 8, 1859.

Oscar II., a son of Oscar I., born at Stockholm, Jan. 21, 1829, succeeded his brother, Charles XV. on July 18, 1872, and was crowned on July 18, 1873. His remarkable intelligence and great diplomacy in dynastic matters affecting European sovereigns resulted in Great Britain, Germany and America requesting him to appoint the chief justice of Samoa in 1889, and he became umpire in the Anglo-American arbitration treaty of 1897. His works include *Memoirs of Charles XII.* He died at Stockholm, Dec. 8, 1907.

Oscillograph Electrical instrument for showing and recording the form of the waves of alternating currents and high-frequency oscillations. In the Duddell oscillograph and the Irwin hot-wire oscillograph, the record is shown by a spot of light reflected from a mirror.

Oshawa City and port of Ontario. On Lake Ontario, it is 33 m. from Toronto, on the C.P. and C.N. Ry's. Its chief industries are carriage and motor works, foundries, flour and woolen mills, etc. Pop. 11,940.

Osier Name applied to those native or cultivated forms of willow trees and shrubs whose tough, flexible branches serve for basketry and wickerwork. Besides the common osier, *Salix viminalis*, with forty varieties, British osier-beds also contain the brown or French willow, *S. triandra*, much hybridised, the red *S. purpurea*, and the golden osier, a yellow variety of the white willow.

Osiris Ancient Egyptian deity. Originally the local god of Busiris, interred at Abydos, he was during the Old Kingdom revered as the legendary source of Egypt's well-being, and a centre of widespread worship. Around him grew up mythical stories, making him the husband of Isis and brother of Set, the god of darkness. Later religion made him the judge of the dead and god of the after-life, represented in mummified form with a plumed crown.

Oslo Capital city of Norway. It is picturesquely situated on the S.E. coast at the head of the Christiania Fiord. Its Danish name of Christiania was changed to Oslo on Jan. 1, 1925, in deference to national sentiment. The city was designed and laid out by Christian IV. in 1624 and possesses several ancient buildings as well as a university, museum and state theatre. Its harbour is ice-bound during the winter. Its manufactures include iron, wool, cotton, paper, tobacco and matches. It has a broadcasting station (1053 M., 60 kW.). Pop. 258,341.

Osman Sultan of Turkey. Founder of the Ottoman Empire, he ruled in Asia Minor from about 1298 to 1326. Osman II. reigned from 1616 to 1621.

Osman Turkish pasha and soldier. Born at Tokat in Asia Minor in 1832, he distinguished himself at Plevna in 1877. With the help of his engineer, Tewfik Pasha, Osman entrenched himself in such a formidable position that he delayed the Russians for five months before capitulating, thus causing them to cross the Balkans in mid-winter. He was

richly rewarded on his return from imprisonment, and in 1878 became War Minister, which post he held until 1885. He died on April 14, 1900.

Osmium Rare metal, having the symbol Os, atomic number 76, and atomic weight 190.8. It is bluish-white with a brilliant lustre. The metal is very hard and has a higher density than any other known substance. It is associated with platinum and occurs as a natural alloy with iridium as osmiridium in Russia, Tasmania, South Africa and elsewhere. The alloy, osmiridium, is used for tips of fountain pen nibs and electrical contacts. Osmic acid is of value as a microscopic stain for nerve tissue.

Osmosis Term applied to the process of diffusion of two liquids of different density through a permeable but non-porous membrane, the pressure controlling this diffusion being known as osmotic pressure. To illustrate this, a bladder filled with strong sugar solution is suspended in a vessel of water, and it is found that the water rapidly passes through the membrane into the bladder (endosmosis), and a small quantity of the syrup diffuses outwards (exosmosis). Osmosis is an important factor in the root absorption of plants.

Osmond English saint. As a chaplain he accompanied his uncle, William the Conqueror, to England, and in 1072 became Chancellor. Bishop of Salisbury from 1078, he built the cathedral of Old Sarum, introduced a form of church service, engaged in the preparation of Domesday Book, and died 1099. He was canonised in 1457.

Osnabrück Town in the Prussian province of Hanover, on the Hase, 70 m. from Hanover, and 31 from Münster. It was a member of the Hanseatic League, and contains, besides the cathedral and the Gothic Marienkirche, examples of Gothic and Renaissance domestic architecture. Here in Oct., 1648, the peace Treaty of Westphalia was signed. Important manufactures include machinery, iron, steel, paper and chemicals. Its linen trade in the 18th century helped to restore the ravages of the Thirty Years' War. Pop. 85,017.

Osprey Cosmopolitan bird of prey, distantly related to the honey-buzzards, *Pandion haliaetus*. Also called fish-hawk, it feeds solely on fish. The male, 24 in. long, has dark-brown plumage laced with white, and white underparts. The birds nest on trees or lonely rocks near water; two or three red-blotched eggs are laid. The so-called osprey plumes of the feather trade come from the egret (q.v.).

Ossa Mountain of Greece. Its modern name is Kiseava and it is 6400 ft. high. It is in Thessaly near Olympus and is chiefly known because here the gods and the giants engaged in warfare. The giants are said to have built the neighbouring mountain of Pelion on Ossa in order to reach the sky.

Ossett Borough and market town of Yorkshire, 180 m. from London and 3 from Wakefield, on the L.M.S. and L.N.E. Ry's. Its industries are cloth manufacture and coal mining. Pop. (1931) 14,838.

Ossian Legendary Irish hero and bard. Associated with Fionn and other 3rd-century warriors at the court of Tara, he and his followers traditionally suffered defeat at Gabhra, 293. Mythically spending many years in fairyland, he eventually encountered

S. Patrick, who baptised him. His literary work has disappeared, unless it be embodied in the poems which James Macpherson, a student of Gaelic, claimed to have discovered and "translated."

Ossification Bone-formation. Cartilage is normally converted into bone, both before birth and during childhood, at various centres of ossification, or around fractures. In old age certain cartilages, e.g., the larynx, may become unnaturally ossified. The word is incorrectly extended to morbid processes simulating bone-making, e.g., the thickening of the arterial walls. See BONE.

Ossington Viscount. English politician. John Evelyn Denison was born at Ossington, Notts., Jan. 27, 1800, commenced his political career in 1823, and soon came to the fore as an orator. He was chosen Speaker of the House of Commons in 1857, a position he retained until his retirement in 1872, when he was created Viscount Ossington. He died March 7, 1873. *The Speakers' Commentary of the Bible* was undertaken at his instigation.

Ossory Former kingdom of Ireland. It covers the counties of Leit., Offaly, Kilkenny and Carlow. The term is used to-day for dioceses in the Roman Catholic and Anglican Churches, both of which have their cathedral at Kilkenny. The Marquess of Ormonde holds the title of Earl of Ossory, given to one of his ancestors in 1527.

Osteitis Inflammation of the substance of bone. That of the marrow-filled cavities of long bones is called osteomyelitis; it often arises from septic conditions in young children. Chronic osteitis may be rarefying, when the bone substance diminishes, or condensing, when it increases. It may be due to injury, syphilis or inflammation.

Ostend Town, seaport and watering place of Belgium, 77 m. from Brussels and 60 E. of the Kentish coast. It has commodious modern docks to accommodate the ships of heavy tonnage which cope with the enormous passenger, food produce and other traffic with England and elsewhere. The promenade, 3 m. long, is constructed of granite, with a casino and the Royal Châlot. Its manufactures include linen and sailcloth.

From 1914-18 Ostend was occupied by the Germans as a submarine base, but aerial bombardment made it indefensible and the sinking of the *Vindictive* in 1918 practically blocked the entrance to the harbour. A lighthouse, replacing the one destroyed in 1916, was completed in 1924. Pop. 48,073.

Osteology Branch of anatomy dealing with the bony framework of the body. See SKELETON, ANATOMY.

Osteopathy Method of medical treatment based on the belief that health can be maintained by attention to the proper mechanical adjustment of the body rather than by the use of drugs. It includes surgical treatment for fractures and wounds, attention to diet, hygiene, etc. In some states in the U.S.A. practitioners are legally on the same basis as other qualified medical men.

Ostia Ancient town and harbour of the city of Latium, Italy. At the mouth of the Tiber, 14 m. from Rome, it became an important harbour during the Punic Wars. The Emperor Claudius had a new harbour constructed 2½ m. to the N., about A.D. 46, connected with the Tiber by a canal, and

Trajan, in A.D. 103, made still further extensions. The canal became blocked in the Middle Ages until the beginning of the 17th century.

Ostia gradually declined until it was abandoned. In the 15th century a castle was erected E. of the ancient city by Guiliardo della Roverre. In 1875 extensive draining of the marshes around Ravenna took place.

Ostracism Greek equivalent for banishment. Votes were recorded on fragments of pottery (*ostraka*), and in Athens, if 6000 citizens voted against a man he was ostracised or exiled for 10 years, or for 5. Miltiades, Themistocles and Alcibiades were all ostracised.

Ostrich Two-toed flightless bird (*Struthio camelus*), with keelless breast-bone, indigenous to Africa and S.W. Asia. It is the largest living bird. The males, 8 ft. high, have short black body-feathers and long white rump and wing-feathers; those of the female are dusky grey. Dwindling in S.W. Asia, they still occur wild in Africa, and are reared in extensive ostrich-farms in S. Africa, Kordofan, Argentina, California and elsewhere.

Ostrogoths Eastern branch of the Goths. They flourished in the 4th and 5th centuries and were one of the branches into which the Goths were divided, the other being Visigoths or West Goths. See GOTHS.

Ostwald, Wilhelm. German chemist. Born at Riga, Sept. 2, 1853, he was educated at the University of Dorpat, after which he spent five years in Riga. In 1887 he became Professor of Physical Chemistry at the University of Leipzig and then Director of the Physico-Chemical Institute there. In 1906 he retired, and in 1909 was awarded a Nobel prize. He wrote a number of books on chemistry, including *Principles of Inorganic Chemistry*. His work lay chiefly in the field of electrochemistry and solutions. He devised the viscometer known by his name, and discovered a method of oxidising ammonia to form oxides of nitrogen. His knowledge greatly assisted the manufacture of explosives in Germany during the Great War.

Oswald King of Northumbria. A son of Ethelfrith, King of Bernicia, he succeeded his brother as king in 635. He was successful as a soldier and united Bernicia and Deira into the kingdom of Northumbria which, during his short reign, was the strongest in England. He was killed at Oswestry in 642 in a battle against Penda, the heathen king of Mercia. Oswald is known for the work he did for Christianity, and was made a saint.

Oswaldtwistle Urban district of Lancashire, on the Leeds and Liverpool Canal and the L.M.S. Ry. Its chief industries are cotton mills, chemical works and printing works. Near are collieries and stone quarries.

Oswego City and port of New York State. On Lake Ontario at the mouth of Oswego River, it is well served by railways, canal barges and lake steamers. The city has a fine modern harbour, miles of quays and extensive accommodation for its gigantic trade in grain and lumber with Canada and elsewhere. Its river water power is also well developed and utilised in its manufactures, which include cotton, woollen goods, cocoa, etc. The Oswego Canal was completed in 1828. Pop. 26,000.

Oswell William Cotton. English explorer. Born April 27, 1818, at Leyton-

stone, he was educated at Rugby and the East India Co.'s College at Haileybury. In 1837 he went to Madras and became known for his prowess as an elephant catcher, whilst he took up the study of surgery, medicine and languages. He next went to S. Africa and explored parts hitherto untraversed by Europeans, including the expedition with David Livingstone and Mungo Murray, when they discovered Lake Ngami and found that it was possible to cross the Kalahari desert with the aid of oxen and wagons. In 1853 he returned to England and served in the Crimean War. He visited N. and S. America, and died May 1, 1893.

Oswestry Borough of Shropshire, 20 m. from Shrewsbury, on the G.W. Rly. It is in an agricultural area and one of its chief industries is tanning. Pop. (1931) 9754. Old Oswestry is a strongly fortified encampment about a mile away.

Otago Provincial district at the S. end of South Island, New Zealand. First settled in 1848, it has an area of 25,487 sq. m., and a population of 173,145. The capital is Dunedin, and it has two seaports, Oamaru in the N. and the Bluff in the S. It produces oats, rye, fruit, and one-third of New Zealand's gold.

Otari Seaport on the W. coast of Yezo, Japan, 100 m. N. of Hakodate. It is a centre for herring fishing. Pop. 134,469.

Otford Village of Kent, on the Darent, 3 m. from Sevenoaks and 24 from London, by the S. Rly. Here are ruins of a castle. Pop. 1785.

Otho Marcus Salvius. Roman emperor. Born April 28, A.D. 32, he was sent in 58 by Nero, whom he had displeased, to govern Lusitania. In 69 he supported Galba in a revolt against Nero. He next rose against Galba who was slain. He then proclaimed himself Emperor and reigned only three months, when Vitellius completely overthrew his forces. He committed suicide on April 16, 69.

Otitis Inflammation in the organ of hearing. It may concern the skin of the external ear, and be acute or chronic, sometimes with discharge and more or less deafness. Earache frequently consists of inflammation of the middle ear, also acute or chronic, with or without the formation of pus, which may involve drum-perforation or discharge. Inflammation of the inner ear, producing nerve-deafness, may be due to an affection of the drum or to disease within the brain.

Otley Urban district and town of Yorkshire (W.R.), on the River Wharfe, 10 m. from Bradford, on the L.N.E. and L.M.S. Rlys. Its industries include spinning, tanning, leather dressing and the manufacture of printing machines, and here also are stone quarries. S. of the town is the ridge of Chevin, famous for its extensive views. Pop. (1931) 11,020.

Otley is also the name of a village in Suffolk, 6 m. from Woodbridge.

Otranto Seaport and town of Apulia, Italy, 45 m. from Brindisi. Founded by Greek colonists, in the Middle Ages, it was the principal trading port with Greece. It has ruins of a castle which Horace Walpole used in the title of his romance. It has a small harbour. Fishing is its principal industry.

The Strait of Otranto is 44 m. across. Here is a lighthouse; a cable runs to Corfu and elsewhere.

Ottawa River of Canada. The most important tributary of the St.

Lawrence, it rises 300 m. N. of the capital of Ottawa and has important tributaries on each bank, the largest being the Gatineau. Its total course is about 685 m., of which only a third is navigable. At Ottawa the river forms the Chaudière Falls, 40 ft. high. The Rideau Canal connects it with Lake Ontario.

Ottawa Capital of the Dominion of Canada, on the Ottawa River, between the Chaudière and Rideau Falls. Champlain describes the site in his *Voyages* as early as 1613, but no settlement was attempted, owing to the hilly nature of the district, until well on in the 19th century, when a canal was built from the Chaudière Falls to Lake Ontario. This settlement soon developed into a wealthy and important factor in the lumber trade. Ottawa was incorporated as a city in 1854, and in 1858 was chosen as the capital of Canada.

Finely situated, Ottawa numbers among its important buildings, the Parliament buildings, Royal Mint, National Museum and National Art Gallery. It is served by the C.N. and C.P. Rlys. and is cut in two by the Rideau canal. Pop. (1931) 124,988.

An important conference was held at Ottawa in 1932, when representatives of the self-governing states of the British Empire met to discuss the possibilities of increasing intra-imperial trade.

Otter Various distributed sub-family of carnivorous mammals of the weasel family. The common European river-otter, *Lutra vulgaris*, 27 in. long, with 15 in. tail, has short limbs, rounded webbed feet, and small external ears. It hunts fish, especially by night, swimming horizontally through the water. Common throughout Britain, it rests in river-banks or in seashore coves. The larger American *L. canadensis* furnishes the most valuable of N. American furs. Otters occur in India, the Cape and S. America. The sea-otter (*g.v.*) forms a distinct sub-family.

Otterburn Village of Northumberland, 4½ m. from Woodburn station, on the L.N.E. Rly. Near is an obelisk marking the spot where the battle of the Chevy Chase (*g.v.*) was fought between the Douglases and the Percies on Aug. 19, 1388. Pop. 350.

Otter-Hound Breed of dog maintained for otter-hunting. Descended from the old southern breed, it is distinguishable from the rough Welsh harrier only by its broad, splayed feet and its abundant oily waterproof undercoat. Standing 23 in. high, with sweeping ears, deep-set eyes and long neck, it is essentially a water-dog. Several packs exist in W. England. Otter-hunting lasts from mid-April to mid-September. See HARRIER.

Ottery St. Mary Urban district of Devonshire, 12 m. N.E. of Exeter and 163 from London, by the S. Rly. The town has lace manufactures. The fine Church of St. Mary is a replica, on a smaller scale, of Exeter Cathedral. Here S. T. Coleridge was born. Pop. (1931) 3713.

Otto Name of four emperors of the Holy Roman Empire. Otto I., called the Great, was born Nov. 23, 912, the son of Henry I., and crowned German King in 936. He spent some years subduing his dissatisfied nobles, the Bohemians, Danes and Wends. In 951 he defeated Berengar II., and in 955 the Magyars. His first wife was Edith, daughter of Edward the Elder; his second wife, Adelaide, Queen of Lombardy. He died May 7, 973.

Otto II. Born 955, son of Otto the Great, was crowned German King in 961 and joint Emperor of Rome in 967. During his reign he subdued a revolt of the Duke of Bavaria, expelled the French from Lorraine, and unsuccessfully laid claim to part of S. Italy. He died Dec. 7, 983. **Otto III.**, called The Wonder of the World, born July, 980, the son of Otto II, was chosen king as his father's successor and crowned in Dec., 983. His mother, Theophano, governed until her death in June, 991, and he took over the reins of government on May 21, 996. His ambition was to make Rome an empire surpassing in greatness anything hitherto conceived, but he died before accomplishing this, Jan. 23, 1002. **Otto IV.** Born about 1174, the son of Henry the Lion, was chosen German King, Nov. 11, 1208, and crowned Emperor in Rome, Oct. 4, 1209. He quarrelled with the Pope who excommunicated him, and in 1212 declared him deposed, upholding Frederick II. in opposition to him. Otto espoused England's cause against France, and, defeated in 1214, escaped with difficulty to Cologne. He died May 19, 1218, at Harzburg.

Otto I. King of Greece. The son of Louis I. of Bavaria, he was born June 1, 1815. Elected by the Conference of London to occupy the newly created throne of Greece when only 17, he was forced to rely on Bavarian troops and ministers to maintain his position. With the help of Ludwig, Count of Armasperg, his Bavarian Chancellor, he kept the Greeks in subjection. In 1861 the nation revolted after an attempt to murder the Queen Amalie, and in 1862 Otto and Amalie were forced to leave Greece and return to Bavaria. He died July 26, 1867.

Otto, or Attar, of Roses

Essential oil obtained by distilling or macerating the petals of damask and other fragrant-flowered roses. Most otto on the market comes from the Balkans, where 20,000 Bulgarian peasants cultivate small plots of roses; 150 lb. of petals yield 1 oz. of pale-yellow oil. The distillate water, treated with fresh flowers, furnishes the rosewater of perfumers.

Ottoman Name of a Turkish people. Osman, or Othman (1288-1326) was the leader of a tribe which was called the Ottoman Turks. They became very powerful and in 1453 took Constantinople.

The name Ottoman is applied to a form of cushioned seat without a back, which originated in Turkey.

Ottoman Empire

 See TURKEY.

Otway, Thomas. English dramatist. Born at Trotton in Sussex, Mar. 3, 1652, he was educated at Winchester and Christ Church, Oxford. He failed as an actor, but had some success with his tragedy, *Alcibiades* (1675). He followed this success with a series of comedies and tragedies, including translations of Racine and Molière. His greatest work is *Venice Preserved* (1682). He died April 16, 1635.

Oudenarde Flemish town, on the Schelde, 17 m. S.S.W. of Ghent. On July 11, 1708, it was the scene of a battle in the War of the Spanish Succession, when the Duke of Marlborough and Prince Eugene defeated a superior French force, and drove Louis XIV. to make peace overtures, which were not accepted.

Oudh Province of N.W. India occupying the basin of the Gumti, Gogra and Rapti rivers. It stretches from the N. bank of the Ganges to the lower Himalayas. Entirely agricultural, it exports crops of wheat and rice. Its largest town is Lucknow. In the 12th century Oudh became subject to the Empire of Delhi, previous to which it was one of the earliest centres of Aryan civilisation. It was annexed by the British in 1856 after being an independent state for about a century. The population is one of the densest in the world. Pop. 12,833,000.

Ouida Pseudonym of Louise Ramée, the English novelist. Born at Bury St. Edmunds, Jan. 7, 1839, she lived in London for a time and then made her home in Italy. Of her many novels *Under Two Flags* and *Moths* are considered her best productions. She died Jan. 25, 1906.

Oulton Lake or broad of Suffolk. It is near Lowestoft, and on it is the village of Oulton, famed for its connection with George Borrow. Also called Lake Lothing, it is visited for boating and fishing.

Ounce (or Snow Leopard). Large spotted cat (*Felis uncia*) inhabiting the mountainous regions of Central Asia. Obtuse-muzzled, 7 ft. long, including 3 ft. tail, the long, woolly fur, greyish above, pure white beneath, has large black irregular spots. It preys on wild sheep, goats and rodents, descending to 6000 ft. in winter, and ascending to 18,000 ft. in summer. See LEOPARD.

Oundle Urban district and market town of Northamptonshire, on the Nen, 13 m. from Peterborough, on the L.M.S. Ry. Its chief industry is lace making. Pop. (1931) 2001.

Oundle School was founded by Sir William Laxton in 1550. It is controlled by the Grocers' Company and in the 19th century became a great public school under F. W. Sanderson.

Ouse River of East Anglia, known as the Great Ouse, 160 m. long. It rises in the hills between the counties of Oxford and Northampton and flows for 160 m. to the Wash. It flows past Buckingham, Newport, Pagnell, Bedford, Huntingdon, St. Ives and King's Lynn, and is navigable to Bedford. Its tributaries include the Little Ouse, Cam, Lark, Ouzel and Tove. Two artificial channels called the Bedford rivers take some of its water across the district.

Ouse River of Yorkshire. It is formed by the union of the Ure and the Swale at Boroughbridge. It passes York, Selby and Goole and then joins the Trent to form the Humber estuary. It is 60 m. long and is tidal to Selby. Its tributaries include the Nidd, Aire and Don, Derwent and Wharfe; by means of canals it is connected with other waterways in the N. of England.

Ouse River of Sussex. It rises near Horsham and flows to the English channel at Newhaven, 30 m. long. It passes Lewes, to which town it is navigable by small vessels.

Outlawry Art of placing a person outside the protection of the law. It was a very common punishment in the Middle Ages, but is never employed to-day. An outlaw, having no rights, could be killed by any one and his property taken. Outlawry was not, therefore, quite the same as banishment.

Outram Sir James. English soldier. Born at Butterley Hall in

Derbyshire, Jan. 29, 1803, he began his service in India with the Bombay native infantry in 1819. Almost his whole career was spent in India and Afghanistan. Returning from his successful command of the Persian expedition, he was one of the heroes of the Indian Mutiny. With Havelock he relieved Lucknow and then held it until relieved by Sir Colin Campbell. Created G.C.B. in 1857, he was made Lieutenant-General in that year, and a baronet in 1858. He died March 11, 1863.

Ouzel Name denoting the blackbird in Anglo-Saxon times, and still occasionally so used in N. Yorkshire. The word appears in compound forms, such as the ring-ouzel, *Turdus torquatus*, an allied thrush which reaches Britain every spring for breeding, mostly going southward in October; the water-ouzel, *Cinclus aquaticus*, is better known as the dipper (q.v.).

Ovary Organ of the female in which reproductive cells are developed. The operation known as ovariectomy consists of the removal of cysts and tumours, or of the complete organ itself. Previous to the introduction of antiseptic and aseptic surgical methods this operation was a most serious one, but is now accompanied by lower mortality than other major operations.

Over District of Cheshire. It is on the Weaver, 4 m. from Middlewich, on the L.M.S. and Cheshire Lines Ry's. The chief industry is the mining of salt. Over is part of the urban district of Winsford (q.v.) and Over.

Overload Term used in engineering for an excessive mechanical load on an electric motor preventing the economical working of the machine. An overload may cause a slowing down of the armature, thus reducing the electromotive force and causing waste of energy by the heating of the coils due to the passing of an increased amount of current.

Oversea Settlement Committee. British government committee appointed in 1909 to bring the government into closer touch with the settlement of British subjects in the Dominions and elsewhere. It is non-political and widely representative, and advises on land development, settlement schemes, assisted passages, training, etc. The government's contribution in any one year is limited to three million pounds.

Overseas Trade Name given to a department of the British Government that exists to promote trade with foreign countries. It was set up in 1917 and is under the joint control of the Board of Trade and the Foreign Office. The offices are at 35 Old Queen Street, London, S.W.1, and 73 Basinghall Street, London, E.C.2.

Overseer Officer formerly appointed by justices of counties or boroughs, parishes and townships. There could not be less than two, or more than four for one parish or township. The duties of an overseer included the appropriation, distribution and collection of poor rates, but after the passing of the Poor Law Amendment Act of 1834, such duties as the distribution of poor relief, etc., were transferred to the boards of guardians. The office was abolished in April, 1927, by Order of Council.

Overture A musical composition, primarily intended to introduce a play, opera or other larger work. Originally consisting only of some introductory

bars, it was developed by Lulli into the fixed form of a slow introduction followed by a quick fugal *Allegro*. Gluck made the overture analogous to what succeeded it, and in *Iphigenie en Tauride* made no break between the overture and the opening scene. Later composers incorporate in the overture themes from the main work.

Ovid Roman poet. Publius Ovidius Nosa was born at Sulmo, in the Pacligni, March 20, 43 B.C. Destined for the law, he early abandoned public life for poetry, and became a master of the elegiac couplet. He enjoyed the favour of the Emperor Augustus, and was a friend of Propertius and Tibullus. In A.D. 9 he was banished to Tomi, on the Black Sea, where he died A.D. 17. The *Amores* contains his work.

Owen Sir Richard. English biologist. Born on July 20, 1804, at Lancaster, after studying medicine at Edinburgh and London, he was influenced by Abernethy to take up scientific research, and in 1836 he became superintendent of the Natural History Department of the British Museum. In 1861 he completed his scheme of making a separate National Natural History Museum, which was established at South Kensington. He wrote profusely on zoology and anatomy. He died on Dec. 18, 1892.

Owen Robert. British social reformer. Born at Newtown, Montgomeryshire, May 14, 1771, when 10 years old he started work, at 19 he was the manager of a cotton mill, and at 28 part owner of the New Lanark cotton mills. He encouraged his workpeople in thrift and cleanliness, helped to establish infant education, and endeavoured unsuccessfully to run experimental communities on co-operative lines. In 1828 he left New Lanark, and, his wealth exhausted, spent the rest of his life in socialistic and spiritualistic propaganda, establishing an unsuccessful colony at New Harmony, U.S.A. He died Nov. 17, 1858.

Owen Sound Town and lake port of Ontario. It stands on the Sydenham River, where it falls into Owen Sound, an arm of Georgian Bay and therefore of Lake Huron. It is 120 m. from Toronto, and is served by both the trans-continental lines and lake steamers. There is a good harbour and the industries include flour mills and lumber mills. Pop. (1926) 12,190.

Owl Generic name for nocturnal birds of prey. They have large heads, shortened faces, hooked bills and large forward-looking eyes, usually set in a ruff of feathers, many having feathered ear-tufts or horns. The softness of the plumage enables very noiseless flight. They feed on small mammals, birds and reptiles. Of about 200 species three, the barn, the tawny and the long-eared, are resident in Britain. Two others, the short-eared and the snowy, are regular summer visitors; there are other occasional stragglers.

Oxalic Acid Organic acid occurring in the wood sorrel, *Oxalis acetosella*, as a free acid and acid potassium oxalate. It is a white crystalline and poisonous substance, prepared commercially by fusing sawdust with a mixture of caustic soda and potash. Oxalic acid is used in dyeing, calico-printing, straw and flax bleaching, and the cleaning of metals.

Oxford County town of Oxfordshire. It is situated on the River Thames, 51 m. W.N.W. of London. In Saxon times it was an



THE LAUGHING CAVALIER.—From the world-famous portrait by the Dutch master, Franz Hals—now in the Wallace Collection, London.

important military fortification, and its academic associations begin as early as the 12th century with Theobald of Etampes' School, and, in 1185, the establishment of a guild of wandering scholars by Giraldus Cambrensis. The 13th century marked the beginning of a long period during which Oxford played a prominent part in English history. Several parliaments, notably the Mad Parliament, were held here, and a charter was granted in 1248. The power of the University has hindered Oxford's growth as a town, but it has developed considerably, and the establishment of the Morris Motor Works at Cowley has made Oxford an important industrial centre. Pop. (1931) 80,540. See OXFORD UNIVERSITY.

Oxford Robert Harley, 1st Earl of. English statesman. Born in London, Dec. 3, 1661, he entered Parliament, as a Whig, but later seceded from the Whigs and led the Tories. In 1704 he was Secretary of State, and in 1710, Chancellor of the Exchequer. In 1711 he was Lord High Treasurer, and was raised to the peerage. He fell into disfavour with Anne and Lord Bolingbroke before her death, and soon after the accession of George I., he was impeached for treason. Imprisoned for 2 years he died on May 21, 1724.

Oxford and Asquith Earl of. English politician. Born at Morley, Yorkshire, Sept. 12, 1852, Herbert Henry Asquith was educated at the City of London School and at Oxford, where he had a distinguished career. He was called to the Bar, entered Parliament for East Fife, in 1886, and represented that constituency until 1918. He became Home Secretary in the Liberal Government of 1892, on the fall of the Salisbury Government, and was attacked vigorously for his conduct in sending troops to suppress the Featherstone Colliery strike. In 1905 he became Chancellor of the Exchequer in the Campbell-Bannerman Government, and succeeded Campbell-Bannerman as Premier in 1908. In 1911 an Insurance Act was passed, and in 1912 there followed the famous constitutional struggle with the House of Lords. Asquith tried to give Southern Ireland Home Rule, while pacifying Ulster, and on the outbreak of war, in 1914, he appointed Lord Kitchener War Minister. Differences arose on the conduct of the war, and a coalition cabinet was formed, but Asquith resigned the premiership in Dec., 1916.

In 1918 he was defeated for Fife, but returned for Paisley. The Coalition fell, and the Labour and Liberal parties later ousted the Tory Government under Baldwin. After the defeat of the first Labour Government in 1924, he was again without a seat, but was made Lord Oxford and Asquith in 1925. In 1926 he quarrelled with Lloyd George over the General Strike. In his last years he wrote his reminiscences, *Fifty Years of Parliament*. He died on Feb. 18, 1928. Asquith's second wife, Margot, née Tennant, is known as the witty and brilliant author of *The Autobiography of Margot Asquith* and several other books.

Oxford Group Religious movement in the Church of England. Founded by the Rev. Frank Buchman, an American Methodist minister, it first took root in England at Oxford and represents an attempt to revive the spirit of 1st century Christianity. Stress is laid upon confession, self-dedication and guidance. The movement has spread rapidly over the British Isles and in

America, and has been extended to the Continent, South Africa and India.

Oxford House Settlement in Bethnal Green, London, E.C. It was founded in 1894 by members of the University of Oxford to carry on religious and social work among the poor under the auspices of the Church of England. The original building is in Mape Street, but the settlement includes several others, among them S. Margaret's House, a centre for work among women.

Oxford Movement Movement for the reform of the Church of England, called sometimes the Tractarian movement. The Rev. E. B. Pusey is usually regarded as its founder, and its principles were laid down in sermons which he preached in Oxford in 1833 and in the *Tracts of the Times* published in 1834. The movement aimed at bringing more reverence and order into the worship of the church, but its proposals were disliked by many. In 1932 arrangements were made to celebrate its centenary in 1933.

Oxford University One of the great English universities. Founded about the 12th century, it has 21 colleges: University, Balliol, Merton, Exeter, Oriel, Queen's, New College, Lincoln, All Souls, Magdalen, Brasenose, Corpus Christi, Christ Church, S. John's, Trinity, Jesus, Wadham, Pembroke, Worcester, Keble, and Hertford. There are four women's colleges: Somerville, Lady Margaret Hall, S. Hugh's and S. Hilda's; one academic hall, S. Edmund's, and four independent theological foundations: Pusey House and Wycliffe Hall (Anglican) and Mansfield and Manchester colleges (Nonconformist). Non-collegiate students are called members of S. Catherine's college, and women home students are admitted.

Among other buildings are the Bodleian Library, the University Schools, Sheldonian theatre, Ashmolean museum and the university church of S. Mary. The university has other museums, an observatory, and a botanical garden. The Oxford Union Society is the chief debating society, and there is a well-known dramatic society, the O.U.D.S.

The university has about 4600 students of whom about 800 are women. At its head is a chancellor, but the acting head is the vice-chancellor, nominated annually by the chancellor. Two proctors are appointed annually. The university legislates through convocation, controlled by the Hebdomadal Council (q.v.). Degrees in a variety of subjects are granted by the ancient house of congregation. Individual colleges are ruled by a head, whose title varies from college to college, and follows the disciplinary officer of the college being the dean.

Among its famous alumni may be mentioned Sir Philip Sidney, Pitt, Wesley, Cardinal Newman, Cecil Rhodes, and more recently, Lord Asquith, Lord Birkenhead, Sir John Simon and others.

The university has a famous press, the Clarendon Press, with offices in Oxford and London. The university sends two members to Parliament.

Oxfordshire County of England. In the south of the country, it is wholly inland and has the Thames as its southern boundary. The chief town and the largest is Oxford; others are Banbury, Bloxworth, Henley, Woodstock, Thame, Chipping

Norton and Witney. It also contains Dorchester and Burford, as well as Blenheim, Nuneham and many other places of beauty and interest. The Chiltern Hills are in the county, which is mainly agricultural. The rivers include the Windrush, Evenlode, Thame and Cherwell. Oxfordshire sends two members to Parliament. It is a hunting county. Pop. (1931) 129,059.

The Oxfordshire and Buckingham Light Infantry was originally the 43rd and 52nd Foot, two of the most famous regiments in the British army. These were raised in 1741 and 1755 respectively, and were part of the light division that served in the Peninsular War. The depot is at Oxford.

Oxidation Term applied to the process by which various substances combine with oxygen to form oxides. In the case of metals oxidation is often the cause of corrosion, a familiar example being the formation of rust, an iron oxide, upon iron or steel when exposed to the air, especially if moisture is present.

Oxides Term used in chemistry for a compound formed by the combination of an element with oxygen. All the non-metallic elements, except hydrogen, which form oxides combine with water to produce acids, these being termed acidic oxides. Metals when burnt in air or oxygen form basic oxides, which, uniting with water, produce hydroxides; often peroxides occur containing a higher quantity of oxygen. Many metallic ores are oxides, such as haematite, limonite and magnetite, the oxides of iron, cuprite, an oxide of copper, and cassiterite, an oxide of tin. Other mineral oxides are quartz or silicon oxide and corundum or aluminium oxide.

Oxlip Perennial herb of the primrose order (*Primula elatior*), native of Europe and Siberia. Mentioned by Shakespeare, it grows sparingly in four E. counties of England. The scentless flowers form a stalked umbel, the corolla limbs being broader and flatter than in the primrose. Garden hybrids between primrose and cowslip are also called oxlips.

Oxus River River in Central Asia, also known as Anu Daria. Running from Lake Victoria (13,870 ft. elevation) in the Pamir highlands to the Sea of Aral (160 ft.), it is about 1500 m. long, forming for nearly 700 m. the boundary between Afghanistan and Turkestan.

Oxy-Acetylene See ACETYLENE.

Oxygen Gaseous element having the symbol O and atomic weight 16. It exists in a free state in the atmosphere, of which it forms about 21 per cent. by volume, while in combination it constitutes nearly one-half by weight of the solid crust of the earth and eight-ninths by weight of water. Oxygen is colourless, odourless and tasteless, supports combustion, but is itself incombustible. As it has become of great commercial importance, being used in medical practice

and in the production of high temperatures, etc., oxygen is prepared now on a large scale by liquefaction of air and the electrolysis of water.

Oxyrhynchus Ancient town near Bohnesa on the Buhr Yusuf, Upper Egypt. It has yielded many valuable papyri.

Oyster Cosmopolitan genus of bivalve molluscs (*Ostrea*). The common edible *O. edulis* of British and European coasts is very prolific, each oyster producing seasonally 600,000 to 1,800,000 eggs. It attaches the convex valve to a bank or reef, where it remains until dislodged. Natural banks contribute a diminishing proportion of the supply, which comes more and more from cultivated oyster-beds in Britain, France, Holland and elsewhere. During the spawning period, May-Aug., they are out of season. Pearl oysters form a distinct family. See BIVALVE, PEARL.

Oyster Bay Watering place of New York State. It is on the north of Long Island, and is reached from New York by railway and steamer. It takes its name from the oysters found here.

Oyster-Catcher Widespread genus of wading birds of the plover tribe (*Haematopus*). The European *H. ostralegus*, 16½ in. long, resident in Britain, was called sea-pie down to Stuart times. It has short coral-red bill and feet, the male plumage being black and white; 3 to 4 blotched clay-coloured eggs are laid in slight hollows near the shore. It feeds on marine worms, mussels, limpets etc. There are Japanese, American and Australian species.

Oystermouth Watering place of Glamorganshire, near Mumbles Head. It has a ruined castle. At one time oysters were cultivated here.

Ozokerite Wax-like hydrocarbon found associated with petroleum in many parts of the world, the chief source being in the district around the Caspian Sea. When pure it is transparent, pale yellow to greenish in colour, with an odour resembling that of benzine, and of the hardness of beeswax. The commoner varieties are harder, and vary in colour from brown to black. Purified with sulphuric acid, ozokerite forms a white wax known as ceresin used in the manufacture of candles and boot polishes, and as an insulating material. The residue from the refining stills when mixed with rubber is used under the name of okonite for insulating cables, etc.

Ozone Gas having a distinctive odour and formed in dry oxygen or air when subjected to a series of sparks from an electrical machine. It is also present in small quantities in the atmosphere. Ozone represents a form of oxygen with three atoms in the molecule instead of two. It is a powerful oxidising agent, bleaching vegetable dyes and destroying organic matter, and is used on a large scale in purifying drinking water, bleaching, the thickening of oils, and ageing of spirits.

P**AARDEBERG** Battle of. Action in S. African War, fought Feb. 18, 1900, between the British under Lord Kitchener, and the Boers under Cronje. The British failed in their attack, but nine days later Cronje surrendered to Lord Roberts.

Pacific Ocean Largest of the oceans of the world, the Pacific has an area of about 55 million sq. m. and contains many islands and partially enclosed seas. In the north it is bounded by the Bering Strait, but on the south it is widely open, and its mean depth is much greater than that of the Atlantic Ocean. The deepest soundings known occur in the Pacific at Tuscarora Deep to the north of Japan with a depth of 4700 fathoms, and near the Philippines with 5348 fathoms. In addition to the numerous trade routes a submarine telegraph cable runs from Vancouver by way of Norfolk Island to New Zealand and Australia.

Packfong (or Pakfong). Hard, white, malleable metal. Chiefly produced in China, it is an alloy of copper containing 44·7 per cent zinc, 15·3 per cent nickel and about 40 per cent copper. The percentage of the former two varies greatly and sometimes 2 per cent of iron is added.

Paddington N.W. Metropolitan borough of London with north and south Parliamentary divisions, each returning one member. Here is Paddington station, the terminus of the G.W. Rly. It belonged at an early date to the Abbey of Westminster, and was later granted to the Sec of London by Edward VI. It possesses a borough council with mayor, 10 aldermen, and 60 councillors. Area, 1356 acres. The borough of Paddington includes Bayswater. Pop. (1931) 144,950.

Paddy (Malay *pad-i*). Commercial term for unhusked rice. It is applied also to rice fields which are known as paddy fields.

Paderewski Ignace Jan. Polish musician, composer, and statesman. Born Nov. 18, 1860, in Podolia, Russian Poland, he practised as a pianist from earliest childhood, and was a student at the conservatoire at Warsaw under Janotha, and later at Berlin under Kiel. He was a teacher at the Warsaw Conservatoire at the age of 18, and professor at Strasbourg from 1885 to 1886. He made his debut at Vienna, 1887, followed by visits to Paris, London and New York. He has since toured in U.S.A., Australia, S. America, S. Africa and New Zealand.

During the World War he organised a relief fund for Polish sufferers and formed a corps of Polish volunteers. He represented Poland at Washington in 1917-18, took the lead in the establishment of Polish Republic, in 1918-19, and was first Premier of Poland in 1919. He was a delegate for Poland to League of Nations, 1920. In 1921 he abandoned politics and returned to music as a career.

Padiham Market town and urban district of Lancashire. It is on the River Calder, 8 m. from Blackburn and 3 from Burnley, and on the L.M.S. Rly. The chief industry is the manufacture of cotton. Coal

mines and stone quarries are in the neighbourhood. Pop. (1931) 11,632.

Padstow Urban district, market town and seaport of Cornwall, on the bank of the River Camel, 280 m. from London on the S. Rly. and 12 from Bodmin. It has a harbour and some fishing. Pop. (1931) 1299.

Padstow Bay is an inlet between Stepper Pointland and Pentire Head.

Padua City of N. Italy on the River Bacchiglione, 25 m. west of Venice. The oldest city in N. Italy, it contains the Palazzo della Ragiane, begun 1172 and finished in 1219. Other fine buildings include a basilica dedicated to S. Anthony and the famous university founded by Frederick II. in 1238. Among its professors and alumni were Galileo, Tasso, Scaliger and Sozieski. Padua contains flourishing factories and automobile works. After the fall of the Venetian Republic in 1797 the history of Padua followed that of Venice till 1866 when, after the Battle of Königgratz, it became part of the kingdom of united Italy.

Paeony Genus of perennial herbs (*Paeonia*) natives of Europe, Asia and N.W. America. The carmine flowers of the common paeony, introduced from S. Europe into Tudor England, occur in single and double-flowered cultivated forms; from the fragrant white paeony of W. Asia have come pink, crimson and flesh-coloured hybrids.

Paestum Ancient Greek city, formerly Posidonia, now named Pesto. It is in Lucania, 24 m. S.E. of Salerno. The old Greek colony is believed to have been founded about 600 B.C., and is mentioned by Strabo and Herodotus. In 273 B.C. it became a Latin colony, and its wonderful roses are referred to by several Roman poets. Interesting ruins remain, the most famous being the so-called Temple of Neptune (c. 420 B.C.). The district is now very malarious.

Paganini Nicolo. Italian violinist. Born at Genoa, Feb. 18, 1784, the son of a porter, he first appeared in public in 1793. After touring Italy he visited Austria and Germany in 1828-9, and Paris and London in 1831, always creating a great sensation by his marvellous playing. He left a fortune of £80,000. He died May 17, 1840.

Page Walter Hines. American diplomat and man of letters. Born Aug. 15, 1855, he became literary editor of the *New York World* in 1881, joined the staff of the *Forum*, 1887, and became editor, resigning in 1895. A member of the New York publishing house, Doubleday, Page & Co., in 1898 he became editor-in-chief of the *Atlantic Monthly*, and editor of the *World's Work*, which post he held till 1913.

In 1911 he supported Woodrow Wilson's candidature for the Presidency, and in 1913 was appointed by him ambassador to London. During the Great War he observed an attitude of strict neutrality, but in private correspondence with Wilson warmly supported the Allies. After the sinking of the *Lusitania* he urged the declaration of war against Germany. His health breaking down in 1918, he retired, and died on Dec. 21 of that year. His *Letters* have been published.

Pahang One of the Federated Malay States under British protection. It is on the east coast of the Malay Peninsula within 200 m. by sea from Singapore. Pop. (1921), 146,064. It is one of four protected native states administered by a Chief Secretary, and under agreement to furnish a contingent of troops for service in the colony should the British Government be at war with any foreign power.

Paignton Watering place of Devonshire, on the Tor, 1 m. to the west of Torquay. The new town is on the sea, the old one behind. Here are the remains of a bishop's palace, in the tower of which Miles Coverdale (1487-1563) is said to have made his translation of the Bible. There is a considerable production of cider in the town. Pop. (1931) 18,405.

Pain Uneasiness or distress of body or mind. In the medical sphere it may be cautionary, corrective, local, general, acute, chronic, throbbing, stabbing, gnawing or burning. To dull pain by bromides, opiates or other anodynes is often harmful.

RELIEF OF PAIN. Pain in the stomach, or bowel, arising from congestion or other disturbance, will be relieved by hot water bottles or hot fomentations. A dose of castor oil will often give immediate relief to pain and will help to cure the condition, or a soap and water enema (1-2 pints at 100° F.) may be used to clear the bowel if the pain is in the lower part of the abdomen. If a more serious cause is suspected (i.e., ulcer, appendicitis, etc.) consult a doctor. See INDIGESTION; COLIC.

Painlevé Paul. French politician. Born in Paris, Dec. 5, 1863, he became a professor of mathematics at the Sorbonne, and in 1906 was elected an independent Socialist deputy for Paris, but it was not until he became a member of M. Briand's cabinet in 1915 that he became important. He was Minister of War in March, 1917, in Ribot's cabinet, and formed his own cabinet in Sept., 1917. He met Lloyd George and Orlando at Rapallo, and their discussions resulted in the foundation of the Supreme Allied Court of Versailles. He was defeated by Clemenceau in Nov., and was not again Premier until 1925, since when he has been War Minister in several cabinets. In 1932 he joined the government of M. Herriot.

Paint Preparation of a pigment mixed with an appropriate vehicle. Some pigments are of mineral origin such as umbers, ochres and siennas, others are derived from plants, such as madders, gamboge and indigo. A few such as sepia, carmine and Indian yellow are of animal origin, while many synthetic dyestuffs are used as pigments.

Pigments are prepared by washing and grinding, and finally mixing with a medium such as linseed oil and turpentine in oil painting, water in water colour, size in distemper, and wax in encaustic painting.

The Painter's Company is one of the ancient livery companies of the City of London, and has its offices in Little Trinity Lane, E.C.

Painting One of the fine arts. It dates back to palaeolithic times when early man made remarkable drawings on the walls of caves in flax tints and brilliant polychrome fresco, using as pigments various earthly substances. In later times in Egypt and Greece mineral and some organic pigments were used with gum as the usual medium. In mediaeval Italy the artists painted in fresco and

tempera, but the early work was flat, then with the Renaissance came the study of light and shade, and the beginnings of perspective, the pioneer artists being Masaccio, Uccello, Mantegna and Leonardo.

With the Van Dycks in the Netherlands originated oil painting, later carried to a high level of excellence by the Dutch and Flemish schools under Rybans, Rembrandt, Hals and others. In Italy the new method was taken up by Leonardo, Perugino and other great artists, and used by the Venetian School under Tintoretto and Veronese. From these times onward, great progress in oil painting has been made in France, Spain and England, as represented by the works of many great masters.

A further development came with the rise of water-colour painting in England during the 18th century. This is now an important branch of the art.

Paisley Burgh of Renfrewshire. It stands on the Cart near its junction with the Clyde about 7 m. S.W. of Glasgow. It is the centre of important cotton thread manufacture. Formerly it was famous for its shawls. Shipbuilding is now an industry owing to the widening of the Cart. Extensive starch, cornflour, bleaching, dye, chemical, fireclay, pottery and engineering works have been developed. Pop. (1931) 88,441.

Palaeobotany Study of fossil plants. From the remotest times they occur in more or less recognisable forms as external plant impressions and casts, petrifications of stems, seeds and other organs, and mummified masses of plant material such as coal. By tracing the relationship of groups now widely divergent through common ancestors now extinct, they throw light both on geographical distribution and on the successive appearance of more and more highly organised forms. During the long pre-Cambrian age unicellular forms were gradually accompanied by cryptogams, represented in the palaeozoic by immense horse tails, lycophytes, conifers and cycads. Flowering plants occur from mesozoic times onwards.

Palaeography Study of ancient handwriting, specifically on flexible materials. Ancient MSS. were written with reeds, stilts or quills. From ancient Egypt onwards literary and non-literary forms of script existed side by side. The one, beginning as separate capital letters, passed into the bookhands which in the 15th century determined the form of printed types. The other, comprising swift cursive scripts, passed into national handwritings. Palaeography throws light upon the date, origin and genuineness of MSS. See EPIGRAPHY.

Palaeolithic Term denoting the rudely chipped and flaked flints and other implements produced by man during the older phase of the prehistoric stone age. These palaeoliths are intermediate between colths and neoliths. Scattered throughout Europe, they accompany other evidences of a primeval civilisation, collectively called palaeolithic, associated with animals now extinct and with human remains of primitive form. It spread throughout the world before the neolithic phase began, and survived into recent times in Tasmania and elsewhere.

Palaeontology Study of past life on the globe, especially as revealed by fossil remains. It comprises palaeobotany (q.v.) and palaeozoology; the term sometimes denotes the latter alone. The

description of the fossil organisms themselves is called palaeontography. See FOSSILS.

Palaeozoic Name given to the division of fossiliferous rocks extending from the Cambrian system through the Ordovician, Silurian, Devonian and Carboniferous to the Permian. They comprise sandstones, shales and slates, often highly metamorphosed, with limestones, impures, and coal. They contain abundant remains of invertebrates, fishes, reptiles, amphibians and non-flowering plants.

Palate Roof of the mouth. It forms a partition between the mouth and the nasal cavity above it. Comprising in front the fixed bony plate or hard palate, it projects behind into a muscular layer or soft palate, ending in a free border or uvula, all covered with mucous membrane on both sides. See CLEFT PALATE.

Palatine Originally signified "pertaining to a palace," and consequently invested with special privileges. A Count Palatine was a feudal lord with supreme judicial authority over a province, and a County Palatine, a province under such a ruler. The only County Palatine remaining in England is Durham, the palatine privileges of which are believed to have been conferred during the Norman Conquest. Certain ancient customs of the palatinate are retained.

One of the hills of Rome (q.v.) is called the Palatine. Augustus, Tiberius and Nero had palaces here.

Pale The. Portion of Ireland which, from the time of Henry II. to that of Elizabeth, was subject to English, not Celtic, law. Its size varied according to the strength of the authorities. The Anglo-Saxon rulers were called Lords of the Pale. There was a "Calais pale" in France till 1558, and an "English pale" in Scotland under the Tudors.

Palermo Capital and seaport of Sicily in N.W. of the island. Originally a Phoenician colony of 8th-6th century B.C., it was also an important Carthaginian centre until acquired by Rome in 254 B.C. There were successive Byzantine, Saracenic, Norman, Spanish, Italian, and French occupations. Finally Palermo was liberated by Garibaldi who entered it in triumph on May 27, 1860. It has a university founded in 1779, and a new harbour, including a shipyard and a dry dock. It has a broadcasting station (542 M., 6 kW.). Pop. 458,979.

Palestine The Holy Land of Christianity and the scene of most of the events of Biblical history. It is bounded on the N. by Syria, on the W. by the Mediterranean, on the E. by the Syrian and Arabian deserts, and on the S. by Arabia. Conquered by the Ottoman Turks in the early part of the 16th century, it was reconquered in 1917 by a British force under Gen. Allenby, who entered Jerusalem on Dec. 9, and subsequently cleared the whole country of Turkish troops. After the war Great Britain was granted a mandate for Palestine by the League of Nations on July 2, 1922.

The area under the British mandate is about 9000 sq. m. and the pop. in 1922 was 757,182, of whom 590,890 were Moslems, 83,794 Jews, and 73,024 Christians, the remainder being Druses, Samaritans, Bahais, Sikhs, Hindus, and Metawilehs. The chief town is Jerusalem (q.v.). Arab villages number about 750. Jewish colonies are grouped in four districts, Judaea, Samaria, Lower and Upper Galilee.

The head of the British Administration is the High Commissioner. There are three administrative districts, Northern (Haifa) Jerusalem, Jaffa and Southern (Gaza), each under a governor. The chief ports are Jaffa, Haifa and Acre. The country comprises four zones, a maritime plain, an inland plateau, a great valley, and Transjordan, east of the Jordan, which merges into the Arabian Desert. A singular feature is the Dead Sea, which is about 1300 ft. below sea-level, is 46 m. long, and has an average width of 8½ m., and is intensely salt.

Palestrina Giovanni Pierluigi Da. Italian composer. Born in 1526, he devoted his talents to the service of the Church and became chapel-master at the Vatican in 1561. In 1555 he lost the post and went to St. John Lateran, but was restored to the Vatican in 1571. One of the greatest polyphonic composers, he left behind him many motets, masses, hymns and other works. He died Feb. 2, 1594.

Palgrave Francis Turner. English poet and critic. Born Sept. 28, 1824, he was educated at Balliol and became Fellow of Exeter College, Oxford. He became private secretary to Earl Granville, official in the education department, and professor of poetry at Oxford (1886-1895). His works include *Idylls and Songs* (1854), *Essays on Art* (1866), *Lyrical Poems* (1871), and *Visions of England* (1881). He also edited various collections of lyrical and religious poetry, notably the *Golden Treasury of English Songs and Lyrics* (1861, re-edited 1896). He died Oct. 24, 1897.

Sir Francis Turner Palgrave, father of above was born in July, 1788. He was the son of a Jewish stockbroker named Cohen, but assumed his mother-in-law's maiden name on his marriage in 1823. He was called to the Bar, 1827, and knighted 1832, and was appointed Deputy Keeper of H. M.'s Records, 1838-1861. His works include *The English Commonwealth* (1832) and a *History of Normandy and of England* (1851-1861). He died July 6, 1861.

Pali Language and form of script of Buddhist sacred books. It was the living tongue of cultured India from the 7th century B.C. onwards, and continued in use for at least ten centuries, being ultimately displaced as Brahmanism regained its hold. Its use was retained by Buddhist scholars in Ceylon, Burma and Siam.

Palimpsest Ancient manuscript imperfectly effaced and its material, usually parchment, re-used. Chemical and photographic means occasionally restore the original writing, sometimes recovering valuable texts; thus, the 12th-century Ephraem Codex in Paris revealed 6th-century portions of Greek Biblical texts. There are some double palimpsests. Palimpsest monumental brasses or stone slabs, reversed for re-use, also exist.

Palissy Bernard. French potter. Born at Agen in France about 1510, he became a glass painter and settled at Saintes. He spent sixteen years in attempts to make enamelled ware, but finally won fame as the producer of pieces bearing coloured plants and animals in high relief. He was imprisoned as a Huguenot in 1562, but released by royal favour, and granted a workshop at the Tulleries. Re-arrested in 1585, he was thrown into the Bastille where he died in 1589.

Palladio Andrea. Italian architect and founder of the Palladian style of architecture. Born Nov. 30, 1518, Palladio

published in 1570 *Quattro Libridell Architettura*. This greatly influenced Inigo Jones (q.v.), who, after studying in Venice, introduced the Palladian style into England, and wrote notes on the *Quattro Libri*, which are incorporated in the English translation, published 1715. Palladio's masterpiece is the Church of the Redeemer at Venice. He died in 1580.

Palladium In Greek legend, an archaic wooden image of Pallas Athena kept in the citadel of Troy for safeguarding the city. Its abstraction by the Greek heroes Odysseus and Diomedes led to the fall of Troy. Another legend claimed that Aeneas took it or another to Italy, where it was preserved in Rome.

Palladium Rare metallic element having the symbol Pd and atomic weight 106.7, palladium is silvery white in colour and like platinum is unaltered by exposure to air, but is slowly attacked by nitric acid. It has been used for parts of chronometers and astronomical instruments, also in certain silver alloys, but the supply now is very limited.

Pallas (Athena). Goddess of wisdom, war and the liberal arts in the Greek mythology. She is said to have sprung fully armed from the brain of Zeus, and is represented armed and carrying a shield bearing the Medusa's head.

Pallium (or Pall). Ecclesiastical vestment. The Roman Catholic Church reserves it for the Pope, archbishops and by ancient usage seven specified continental bishops. It comprises a narrow shoulder-band of white lamb's wool, with short lapets before and behind, embroidered with six crosses and decorated with three jewelled pins.

Pall Mall Thoroughfare in London, so called from the game of *Paille Maille* played here in the time of James I. Originally an open green in part of St. James's Palace, houses began to be built about 1650, and a street was completed about 40 years later. Nell Gwynn lived at No. 79 from 1671 to her death in 1687. Pall Mall, which runs from Trafalgar Sq. to St. James's St., contains many famous clubs.

Palm (*Palme*). Natural order of endogenous plants, mostly large trees, natives of tropical and subtropical regions. Various estimated at 600-1000 species, bearing crowns of spreading fan-shaped or feathery leaves, their economic products are important for habitations, clothing, utensils, food and drink. The coconut's seed-kernels, the date-palm's pulpy fruit, the sago-palm's farinaceous pith, and the cabbage-palm's terminal buds are edible. Other species yield palm-sugar or jaggery, palm-wine or toddy, candle wax, oil, vegetable ivory, fans, rattans, leaf-stalk fibre, leaves for thatch, and the like. The only European species, *Chamaerops humilis*, the Mediterranean fan-palm, is utilised for basketry, hats and vegetable horse hair. See DATE, PALM-OIL, PALMYRA, ETC.

Palma Jacopo. Italian painter, known as Vecchio (old). Born at Serinalta near Bergamo in 1480, he was famous for the richness of his colouring, and for his portraits of women. His most celebrated pictures are six paintings in the Church of S. Maria Formosa at Venice, with S. Barbara in the centre, and "The Three Graces" in the Dresden Gallery. He died in 1528. <

Palmas Las. Chief city of the Canary Islands and a popular holiday resort. It has a considerable harbour, and is a coaling station and port of call for numerous ocean-going steamships. Shipbuilding and fishing are the principal industries. Fruit and cochineal are exported. Pop. (1920) 87,122.

Palmer Mendicant pilgrim. He bore in his hand a branch of palm betokening the fact that he had visited the Holy Land. He had no dwelling place, but journeyed from shrine to shrine, existing entirely on charity.

Palmerston Viscount. English statesman. Born at Broadlands, near Romsey, Hants, Oct. 20, 1784, Henry John Temple became 3rd viscount in 1802, entered Parliament in 1806 and was Junior Lord of the Admiralty and Secretary-at-War, 1809-1828. In 1830 he became Foreign Secretary under Earl Grey, but went out with the Whigs in 1841. He was Foreign Secretary again in 1846 under Lord John Russell. In 1850 a vote of censure on his foreign policy was carried in the House of Commons, but defeated in the Lords. In 1851 he angered the queen by expressing approval of the *coup d'état* of Louis Napoleon without consulting her, and was forced to resign. He was Home Secretary under Aberdeen in 1852 and Prime Minister in 1855, when he vigorously prosecuted the Russian War. Defeated in 1857, he came back, was again defeated, and in 1859 again Prime Minister, retaining office until his death Oct. 18, 1865. He is buried in Westminster Abbey.

Palmistry Art or practice of reading the hand. It comprises chiromnomy, or character-reading, and chiromancy, or foretelling the future, and operates by inspection of lines and markings on the human palm. This form of divination, of great antiquity, has developed a complex system of interpretation, entirely non-rational, which names the thumb and fingers after certain planets, and draws lines over the palm to represent life, fate and love, crossed by others which represent head and heart. See FORTUNE-TELLING.

Palm Oil Fatty substance from the fruits of several palms, pre-eminently the W. African oil palm, *Elaeis guineensis*. The boiled pericarp yields an orange-red fat, comprising tripalmitin and triolein, which melts at 80.5°F. It serves for making soap, candles and railway carriage grease. Palm kernels yield a white oil used like coconut oil in making margarine.

Palmyra Ancient city of Syria. Situated in a desert oasis 120 m. N.E. of Damascus, its Old Testament name Tadmor still survives. Under the Roman Empire its position on the Euphrates caravan route made it influential and opulent, as magnificent ruins attest. Prominent under Hadrian, it enjoyed a brief 3rd century independence, culminating in Queen Zenobia's capture by Aurelian, 272.

The Palmyra Palm is a tree indigenous to India and Indo-China, with a tropical African variety (*Borassus flabellifer*). It yields sugar, toddy, matting, basketry, fans and timber.

Pamir Mountainous region of Central Asia, mostly Russian. It forms a central knot 13,000 ft. high and upwards, from which radiate ranges and rivers into N.W. India, Russia, Chinese Turkistan and Afghanistan. The N. slope drains into the Aral

Sea and the Tarim basin, the S., connects the Hindu Kush and Karakoram ranges.

Pampas Plains of Argentina. They extend from the Andean foothills to the Paraná River and the Atlantic coast. The sandy and clayey soil resembles Russian steppe land. The E. treeless grasslands support cattle, sheep and horses, and produce wheat. The more sterile W. includes saline deposits. The grasslands produce pampas grass, *Cortaderia argentea*. It forms tufts of leathery leaves 5 to 7 ft. long, and stems bearing dense silky silvery-white panicles 10 to 12 ft. high.

Pampas Indians is the collective name for S. American Indians of the Argentine plains.

Pan In Greek mythology the god of shepherds, huntsmen and rural people, also protector of flocks and herds, wild beasts and bees. Chief of the Satyrs and inventor of the syrinx or Pan's pipes, he is supposed to have inspired sudden fear, hence the word *panic*. He is represented with two small horns and lower limbs of a goat.

Panama Central American republic. Its area is 32,380 sq. m. Pop. (including Canal Zone) 481,953. The inhabitants are mostly a mixed race of Spanish, Indian and Negro origin. The state is administered by a president assisted by three vice-presidents and a cabinet of five ministers, and is divided up into eight provinces. The capital, Panama, had in 1920 a pop. of 66,851. There is a university at Panama.

Panama Canal Canal connecting the Atlantic and Pacific Oceans. It was constructed as the result of a treaty (1903) between U.S. and Panama granting the use and control of a zone 5 m. wide on each side of the canal route. The canal is about 40 m. long from deep water in the Caribbean to deep water in the Pacific. The width is from 300 to 1000 ft. and the minimum depth 41 ft. The average time of passage is 7 to 8 hours. Informally opened to traffic Aug. 15, 1914, landslides caused interruptions up to 1917, but since then the channel has been kept clear. The official opening was on June 12, 1920. The Hay-Pauncefote Treaty (1901) provides for the use of the canal under equal terms by vessels of all nations.

Pancras Patron saint of children. Born in Phrygia of noble parentage, he refused to renounce Christianity at Diocletian's bidding, and was beheaded c. 293 when 14 years old. He is commemorated on May 12. A London borough and several British churches bear his name, as did the Clunio Priory, Lewes. See ST. PANCRAS.

Pancreas Large glandular organ situated behind the stomach and having a duct opening into the small intestine close to the bile duct. It secretes an alkaline digestive fluid which converts starch into sugar, fats into glycerine and fatty acids, and peptones into aminoacids. In addition an internal secretion, insulin, is concerned in the assimilation of glucose.

Pandora In Greek mythology, according to Hesiod, the first woman upon whom the gods lavished their choicest gifts. Though forbidden to do so, she opened a box containing all human ills and allowed these to escape, but managed to save the good gift of hope.

Pangbourne Village of Berkshire, on the Thames, 5½ m. N.W. of Reading, and on the G.W. Ry. It is much

frequented by anglers. It has a college for training officers for the mercantile marine. Pop. 1235.

Pangeneses In biology the name given to a theory put forward by Charles Darwin to explain the power of the egg-cell to reproduce the different parts of the body. According to this hypothesis each cell of the body throws off minute germules which ultimately become stored in the egg-cells, and on development reproduce each part of the body.

Pangolin Genus of toothless mammal (*Manis*) occurring in S. Asia and tropical Africa. Short-legged, with lizard-like bodies and tails protected by overlapping horny scales, they roll into a ball when disturbed. Called also scaly anteaters, they capture termites with their long, worm-like tongues. There are three Asiatic and four African species, the largest 6 ft. long.

Pankhurst Emmeline. British suffragist. Born July 14, 1858, she was the daughter of Robert Goulden of Manchester, and married, 1879, R. M. Pankhurst, barrister and advocate of woman's suffrage (d. 1898). She helped to found the Woman's Franchise League (1889). In 1903 she was instrumental, with her daughter, Christabel, in founding the Women's Social and Political Union. Arrested in 1908 for breaches of the peace, she was imprisoned, but was released on grounds of health. Imprisoned in 1912, she went on hunger strike, and was released. In 1913 she was sentenced to 3 years' penal servitude, but again refused food and was released. During the Great War she lent her organisation to the cause of recruiting and munitions. With the extension of the suffrage to women in 1918, she joined the Conservative Party. She died June 14, 1928.

Pansy Perennial herb of the violet order (*Viola tricolor*). Indigenous to Europe, N. and W. Asia and N. Africa. From various species and subspecies have been derived innumerable hybridised forms much esteemed by gardeners, including selfs, white grounds and yellow grounds, besides the bedding varieties called tufted pansies or violas. The French name is *pensee*, "thought." See HEARTSEASE.

Pantheism Metaphysical doctrine which identifies the universe with God. The term, "all-God," introduced by John Toland, 1705, denotes a system of thought or attitude of mind traceable in ancient India, in certain of the Greek philosophers and in such modern philosophers as Spinoza, Fichte, Schelling and Hegel. A form of monism, it is a theism or an atheism according to the emphasis placed upon personality.

Pantheon Name, "belonging to all gods," applied to the best preserved ancient temple in Rome. Erected by Hadrian, A.D. 120-4, it occupied the site of an earlier temple built by Agrippa in 27 B.C. Consecrated 609, it is now the Church of Santa Maria Rotonda. The Pantheon in Paris, built in 1754-90, dedicated as a church to S. Geneviève, was set apart as a mausoleum for illustrious Frenchmen, 1792.

Panther Large carnivorous mammal of the cat family, indistinguishable from the Old World leopard (q.v.). Mediaeval fabulous bestiaries regarded them as distinct. Modern sportsmen tend to call panthers the larger, and leopards the smaller examples. In

N. America the name, colloquialised as "painter," denotes the puma (*q.v.*), which in S. America is sometimes called the cougar (*q.v.*).

Papacy The. Term employed in two senses (1) ecclesiastical, denoting the system under which the Pope, as successor of S. Peter and Vicar of Christ, governs the Catholic Church as its supreme head, and (2) historical, signifying the papal influence viewed as a political force in history. Up to, and including, the Middle Ages the history of the Papacy was to a considerable extent the history of Europe, and under Innocent III. in the 13th century the Pope became a sort of emperor, England for a time being practically governed by his legates.

Thanks to bequests and voluntary grants, a temporal Papal State grew up with, at length, an area of 17,000 sq. m., and Rome as the centre of government. After the Austro-Italian War of 1859 nearly two-thirds of this territory was added to the kingdom of Italy, Rome and its environs being preserved for the Pope by the French. In 1870 Rome was adopted as the seat of government of united Italy, and the Papacy restricted to the Vatican. The temporal power of the Pope remained in suspense until 1929 when, by the Treaty of Feb. 11, the full and independent sovereignty of the Holy See in the city of the Vatican was recognised, and payments were agreed upon in settlement of the Vatican's claims for compensation for loss of temporal power. The outstanding ecclesiastical event in the recent history of the Papacy was the affirmation of the infallibility of the Pope in 1870.

Papaw Small evergreen tree akin to the passion flower order, of S. American origin (*Carica papaya*). Now widely naturalised throughout the tropics, its long-stalked seven-lobed leaves, 2 ft. across, shelter melon-shaped yellow fruits 10 in. long, with thick, fleshy rind. They are eaten raw, boiled or pickled. The unripe fruit yields the digestive ferment papain.

Papen Franz von. German politician. Born Oct. 29, 1879, he entered the army, later joined the diplomatic service, and in 1914 was an attaché in Washington. There he worked hard in his country's interests and against the Allies; on this account the United States Government secured his recall to Germany in 1915. He then went to Gallipoli as a staff officer. In 1931 Papen was elected a member of the diet of Prussia, and became the chief proprietor of the newspaper *Germania*. A member of the centre party he supported the ministry of Dr. Brüning, on whose retirement in May, 1932, he succeeded as chancellor. In July he was given dictatorial power in Prussia.

Paper Material made from fibrous vegetable pulp and used for writing and other purposes. The art of paper making was practised by the Chinese and Japanese in early times, by the Arabs after the 7th century, and by the Moors in Spain in the 12th century. From Spain it spread over Europe to England, where the first paper mill was established in the 15th century.

The first paper was hand-made from rag fibres, but now numerous fibrous materials are used in addition, including straw, esparto grass and chemical and mechanical wood pulp. The introduction of machinery about 1798 revolutionised papermaking, and the invention of the sulphite process for making chemical wood pulp brought about the production of cheap paper for newspapers, etc.

Papier Mâché Name given to a hard, light material made from paper pulp and used for making boxes, trays and similar articles, for internal architectural decoration. It is prepared by pressing pulp into moulds or by subjecting pasted sheets of paper to high pressure. Papier mâché may be japanned, varnished, gilded or inlaid.

Papua (British New Guinea). South-eastern part of the island of New Guinea (*q.v.*) with other small islands in the vicinity. Area, 90,540 sq. m. of which 87,786 are on the mainland. Pop. (1931), Europeans, 1128; Papuans (estimated), 275,000. Papua is administered by the Australian Commonwealth under the Papua Act of the Federal Parliament (1905). Ports of entry are Port Moresby, Samarai and Daru. There is an important mining industry. Rubber, coconuts and sisal hemp are cultivated, and valuable mineral deposits and timber growths are worked. There is a regular steamer trade between Port Moresby and Sydney.

Papyrus Kind of paper used by the ancient Egyptians. It was prepared by cutting into long strips the central pith of the stems of the paper-rush, *Cyperus papyrus*, laying others across, moistening, pressing, drying, polishing and writing upon it with a reed-pen. The rush, formerly plentiful in the delta, has receded to the Upper Nile, but grows occasionally elsewhere. Thousands of papyrus have been collected in Egypt, including classical Greek texts. Their study is called papyrology.

Pará City and port of Brazil. Sometimes called Belem, it is situated on the banks of the Pará River and is the capital of the Brazilian State of Pará. It is the chief commercial centre of the Amazon districts, the rubber trade being the most important. It has a good harbour. Pop. 274,622.

Parabola Term in geometry for a curved figure or conic section formed by the intersection of a cone and a plane parallel to one side. The form of the parabola varies as the cutting plane approaches the side of the cone.

Paracelsus German physician. Born about 1493, his real name was Theophrastus Bombastus von Hohenheim; his father being a Swiss physician. He himself studied medicine, and, acquiring fame as a practitioner, was appointed lecturer at Basle University. His objectionable habits and violent temper brought about his expulsion, and for twelve years he was a wanderer, settling finally at Salzburg, where he died Sept. 24, 1541.

Parachute Form of life-saving apparatus used by aeronauts to descend safely from a height. In its usual form it consists of a silk fabric made in the shape of an umbrella with cords attached at the circumference, and fastened to straps on the back of the person. The parachute is carried in a bag fastened to the body of the operator, and is released either automatically or by means of a rip-cord. Parachutes have been known since the end of the 18th century, and the first successful descent from a balloon was made in 1797 by the French aeronaut, Garnerin.

Paradise Word, denoting an Oriental monarch's park or pleasure, variously translated in the Old Testament. It is used of an orchard of pomegranates in Cant. ii. R.V. margin. It is the septuagint Greek version of Eden (*q.v.*), and is used in the New



PARACHUTES AT HENDON.—One of the impressive spectacles at the Royal Air Force Pageant is a "formation" parachute descent. This remarkable photograph shows an airman accidentally alighting on another's parachute hundreds of feet from the ground. *[Topical*

Tentament of an intermediate state (Luke xxiii., 2 Cor. xii.), or of the heavenly counterpart of Eden, Rev. ii.). The mediaeval conception of the Christian paradise was elaborated by Dante and Milton. The Koran depicts in picturesque imagery the rewards of the Islamic paradise.

Paraffin Term used in organic chemistry for a large series of hydrocarbons possessing similar chemical properties though differing in physical characters and molecular complexity. More generally the term is used for a burning oil obtained from petroleum and shales, also for the solid wax-like substance from the same source. Paraffin wax varies considerably in consistency from a jelly to a hard cake, and is used in pharmacy, candle, match and waterproofing industries, also as an electrical insulator.

Paraguay South American Republic situated between the Paraguay and Parana rivers, and bounded on the north by Brazil and Bolivia and on the south by the Argentine. Paraguay proper has an area of about 62,000 sq. m., but there is a larger tract of territory (the Chaco, *q.v.*) claimed by both Paraguay and Bolivia (*q.v.*). The total pop. is about 800,000. It is a fertile country with excellent grazing land supporting millions of cattle. Agriculture is the basis of the country's wealth. One of the chief exports is Yerba maté or Paraguay tea. Tobacco is also grown, and there is an important timber industry.

The capital is Asuncion (*q.v.*) from which there is a railway to Encarnacion on the Parana River. Roman Catholicism is the established State religion. There is a small defence force of about 100 officers and 2500 men. Legislative authority is vested in a Congress of two houses, a Senate and a Chamber of Deputies, the executive being in the hands of a President elected for a term of four years, assisted by five ministers. In Aug. 1932 the dispute with Bolivia over the frontier territory broke out anew, and some fighting took place along the Paraguay River.

Parallax Astronomical term for the apparent change in position of a celestial body caused by a change in position of the observer, and especially applied to the amount of apparent motion due to this displacement. It is of great importance, as upon the determining of the parallax, astronomers can calculate the distance and magnitude of celestial bodies. Diurnal or geocentric parallax is the apparent difference in position of a body as seen from the earth's surface and from the centre of the earth.

Parallel Term applied in geometry to lines in the same plane that do not meet in either direction. With reference to latitude a parallel is a small circle whose plane cuts the earth's axis at right angles and which, therefore, has an east and west direction. In military science parallels are trenches dug parallel to the defences of a fortress to give cover to the besiegers.

Parallel bars are a form of gymnastic apparatus for developing the muscles of the trunk and arms, and consisting of a series of parallel bars about 30 inches apart and reaching to six feet or upwards from the ground.

Paralysis Loss of the power of muscular action, sensation or function in any part of the body. Associated, organically or functionally, with disorder in the brain, spinal cord or peripheral nerves, it may be general; affect one side only, hemi-

plegia; the lower half of the body, paraplegia; or be localised, *e.g.* facial paralysis, drop-wrist. Hysterical paralysis, without any discoverable lesion, may simulate any organic form. Paralysis agitans, shaking palsy, is a chronic disease of advanced life.

Parana City and port of Argentina. Founded in 1730 by colonists from Santa Fé, from 1852 to 1861 it was the capital of the Argentine Confederation. Pop. (1927) 36,089.

Paranoia Chronic mental disorder characterised by systematised delusions of persecution. Disturbances of various fundamental emotions and sentiments, such as vanity and fear, combined with a credulous constitution, may result in delusions of grandeur or persecution; other forms of the disease are amatory or querulous.

Parasite In biology, any organism, animal or vegetable, nourished wholly or partially at the expense of another organism upon or within which it lives. Except for a few fishes animal parasites are invertebrate, including lice, scale-insects, ticks, leeches, tape-worms and still lower forms. Among parasitic flowering plants are dodders, broomrapes and mistletoe. Parasitic plants are most frequently fungi and bacteria, and occasion many parasitic diseases in men, other animals and plants. The study of parasites is called parasitology.

TREATMENT FOR PARASITES. *Internal.*—The usual remedy for tape worms is oil of male fern (1 drachm), given before breakfast after a fast from 6 p.m. the previous evening. Four hours after the dose, and not sooner, give castor oil.

External.—There are three species of animal parasites acquired in uncleanly surroundings: the Body Louse infests the underclothes, which should be thoroughly disinfected with steam; the Crab Louse is found on the hairy parts of the body and is got rid of by the application of antiseptic lotions and ointments; the Head Louse lays its eggs (nits) on the hair near the roots, which must be soaked with crude paraffin or oil of sassafras for three nights.

Paravane Appliance used in the Great War against mines and submarines. The paravane was somewhat kite-shaped, with a torpedo-like body. It was towed by a wire from a ship, being kept away from the sides by the action of hydrovanes, and at a prescribed depth by a rudder controlled by hydrostatic valves. The head was armed with a cutter for severing the moorings of a mine, or with a striking device for exploding a depth charge when used against submarines.

Parcel Post System of transport and delivery by the Post Office of packages not exceeding specified weights and dimensions. Highly organised in Great Britain, it includes carriage of parcels throughout the Empire and to most foreign countries; also facilities for registration, insurance and payment of cash on delivery of purchased articles. Limits of weight for inland parcels, 11 lb.; limit of size, length 3 ft. 6 in., length and girth combined, 6 ft. Parcels for abroad are subject to customs duty, and if containing dutiable articles a declaration respecting them must be signed by the sender.

Parchment Writing material used for deeds and other documents of a permanent character, and prepared from the skins of various animals. Ordinary parchment is made from the skins of the sheep and

goat. Vellum from the skins of the calf, kid or lamb, a tough variety for book-binding from pig skin, and a parchment for drums from asses' skins. The hair or wool is removed and the skin, after steeping, is stretched on a frame, scraped and rubbed with pumice.

Pardon Dispensation granted by the Pope, remitting that temporal punishment of sin which would otherwise be inflicted, either in this world by penance, or in Purgatory. Such pardons are called Indulgences and in the 16th century were the cause of much scandal owing to the sale of them by Pope Leo X., as a means of obtaining funds for rebuilding St. Peter's Church at Rome. The Romish doctrine of "pardon" is repudiated by the Church of England in the 22nd Article of Religion.

The name **Pardon** is also given to religious gatherings in Brittany associated with the desire of obtaining absolution for sins or cure for bodily ailments. The religious ceremonial is sometimes followed by a sort of village feast.

Pardon In law the remission of the penalty attached to the commission of a crime. By English law pardon is the sole prerogative of the king, and is now exercised by delegation, the king acting on the representation of the Home Secretary. The king, however, cannot pardon a private, as distinct from a public offence, so as to prejudice a person injured by the offence: and the king's pardon cannot be pleaded as a bar to impeachment by the House of Commons. Pardon may be actual or constructive, the latter being obtained by endurance of the punishment. It may also be free or conditional on commutation of the sentence. An Act of Indemnity is a species of pardon.

Parent Father or mother. The parents of a child are its natural guardians till it attains the age of 21, or unless it marries before reaching that age. The primary right resides in the father, but custody of the child may be granted to the mother under the Divorce Acts, the Infants' Custody Act and the Guardianship of Infants Act. Parents' liability for maintenance of their children is governed by statutes, the Act of 57 and 58 Vict. imposing on them the duty of providing adequate food, clothing, medicinal aid and lodging for children in their custody until the boys attain 14 years and the girls 16. Education of children, and parents' responsibility for it is regulated by various Elementary Education Acts. See EDUCATION.

Pariah Name applied by Europeans to any casteless Hindis, and hence to any social outcast. The Paraiyans or Pariahs of the Tamil country in Madras are an agricultural caste, classed as untouchable, but not the lowest. **Pariah dogs** in Oriental towns and villages are animals of domesticated origin which have become half-wild.

Pari-Mutuel System employed in France and elsewhere in order to collect a tax on the amount staked in betting on the Turf. It is on much the same principle as a cash register, every bet made being registered, and both the amount staked on each horse in a particular race and the total amount staked on all the horses in the race being shown publicly. In the Totalisator (*q.v.*), which is superseding the Pari-Mutuel, human agency is replaced by electrical power.

Paris Small genus of perennial herbs of the lily order, indigenous to temperate Europe and Asia. Their short un-

branched stems, rising from creeping root-stocks, bear a whorl of 4 to 9 leaves with a single yellow-green flower whose fetid smell, attractive to flies, assists cross-fertilisation. A red-berried species, *P. polyphylla*, is grown in gardens. See HERB PARIS.

Paris In Greek mythology a son of Priam, King of Troy. Abandoned as an infant on Mt. Ida in consequence of a prophecy that he would cause the destruction of the city, he was reared by a shepherd, and later, gave judgment in the claim of the three goddesses, Hera, Pallas and Aphrodite to a golden apple inscribed "For the Fairest." Deciding in favour of Aphrodite, he was rewarded by the love of Helen (*q.v.*), wife of Menelaus. Her abduction by Paris led to the siege of Troy, in which Paris was slain.

Paris Capital city of France. The city occupies both banks of the Seine and two islands, 110 m. direct from the river's mouth. One of the world's greatest and most beautiful cities it has developed in 2000 years from a group of huts (the Romans called it Lutetia, "the muddy") to be one of the world's leading centres of culture.

Its historical importance dates from A.D. 508, when Clovis (*q.v.*) chose it as his capital, building on the Ile de la Cité. The decay of feudalism and the rise of the guilds in the 11th century hastened the city's growth, while the first municipal authority dates from the 13th century. A great scholastic centre also, Paris, however, became more and more of political importance. After 1559 the kings resided in the Louvre (*q.v.*) which had been rebuilt by Charles V. (1337-1380), in whose reign also the Bastille was built. In 1422 the English took the city and held it against Joan of Arc in 1429.

Modern Paris dates from the Renaissance. Catherine de Medici began to build the Tuileries (*q.v.*) in 1564, and the Pont Neuf was begun in 1577. Quays were constructed and the city spread, its rate of growth increasing under Louis XIV., the "Grand Monarque" (1638-1715), who, however, removed the royal residence to Versailles.

Paris itself regained its importance during the Revolution and under Napoleon, becoming an industrial and economic centre throughout the 19th century and gradually merging with its suburbs. To-day more than thirty bridges cross the Seine, and the public boulevards and squares are renowned for their beauty.

Paris is rich in famous buildings. Besides those already mentioned, there are the cathedral of Notre Dame (1163-1230), the Hotel de Ville, Palais Royal, Champs Elysees, Palais de Justice, the Conciergerie (an ancient prison), Bibliothèque Nationale, Hotel des Invalides (where Napoleon lies buried), the Sainte Chapelle, the Pantheon, burial place of France's great men, the Arc de Triomphe, the Palais du Luxembourg with its wonderful gardens, the Opéra, Champ de Mars, and the Eiffel Tower. St. Germain l'Auxerrois is a well-known church, and the cemetery of Père Lachaise is famous. Montmartre, the Quartier Latin, the Bois de Boulogne, Auteuil and Longchamps are districts too well known to require description. The chief educational institutions are the University of Paris and the Sorbonne.

Transport by road, river and rail is well organised, while from the air Paris is well served by the great aerodrome at Le Bourget. It has eight broadcasting stations, the two most powerful operating on 1725 M., 75 kW., and

447.1 M., .07 kW. The city's shops and restaurants are world-famous; her manufactures include almost every form of industry. The city is still a fortified stronghold with two rings of detached forts. Besieged and captured by the Prussians in 1870, it narrowly escaped a second capture in Sept., 1914, when taxicabs were hastily commandeered to rush every available soldier into the line of defence. Area about 30 sq. m. Pop. (1931) 2,871,039.

Park Mungo, Scottish explorer. Born at Foulshels on the Yarrow, Sept. 20, 1771, he was, by profession, a doctor. His services were accepted in 1795 by the African Association, and, starting from Senegal, he reached the Niger at Segar, after an adventurous journey. He traced the course of the river for some distance but fell ill and was brought back to Senegal after an absence of nineteen months. From 1801-1803 he practised as a doctor at Peebles. In 1805 he undertook another African journey, this time at government expense. Starting from Pissania on the Gambia, he reached the Niger, but was attacked by natives and drowned in Jan. 1806.

Parker Sir Gilbert, British novelist. Born in Canada, Nov. 23, 1862, he was educated at Trinity College, Toronto. After travelling extensively he organised the first Imperial Universities Conference in London, 1903. He was M.P. for Gravesend from 1900-18, was knighted in 1902 and created a baronet in 1915. He was Chairman of S. African Association for nine years, and took charge of American Publicity in the Great War. His writings include poems, plays and novels, the last-named dealing largely with French-Canadian life. He also wrote a *History of Old Quebec* in 1903. A recent publication is *The Promised Land* (1928).

Parkes Sir Henry, Australian statesman. Born at Stoneleigh in Warwickshire, May 27, 1815, he emigrated at the age of 24 and engaged in journalism at Sydney. His able discussion of public questions led to his being elected in 1854 a member of the Legislative Council. In 1866 he became a member of the ministry in which he subsequently held several offices, becoming Premier of New South Wales in 1872. He was premier five times, and was a warm supporter of Free Trade. He died April 27, 1896.

Parkhurst District in the Isle of Wight, called Parkhurst Forest. At one time there was a military station near. The prison can accommodate more than 700 convicts.

Park Lane Fashionable London thoroughfare overlooking Hyde Park and running from Piccadilly to Oxford St. It has important historical associations and contains the mansions of many well-known figures in modern life. Some of the old houses have now been demolished, and hotels erected in their place.

Parkstone Summer resort in Dorset, lying between Poole and Bournemouth, on the S. Isly. Pop. 6550.

Parliament Word used for the legislature of Great Britain and other self-governing parts of the British Empire. It should be distinguished from the parliaments of France before the Revolution, which were in the main judicial bodies.

The English Parliament has been developed from the Witan of the Anglo-Saxon kings, and the King's council of the Normans. Those

bodies met to advise the king on important matters of state; they were without any rules of membership and met when the king required them. In the 13th century knights of the shire and representatives from the town joined the barons, abbots and bishops who had hitherto formed the council, and with their arrival parliament in the modern sense began. Simon de Montfort first called men from the towns, and has been called the founder of parliament, but it was Edward I. who assembled, in 1295, the model parliament that was a pattern for later legislatures.

At first parliament was an assembly of one house, but early in the 13th century it was divided into two, a form it has since retained, the House of Lords and House of Commons. The Lords were much more powerful, the Commons being merely asked for their assent, which was usually taken for granted, but gradually the Commons made themselves equal to the Lords and in the 19th century became definitely the dominant partner. This was due to the control they acquired over finance, and after a time it became the rule that finance was the province of the Commons.

At first, like a witan or a council, a parliament met wherever the king happened to be and sat for as long as he wished. A careful king could do without a parliament perhaps for years, but one who wanted a good deal of money, as did Henry IV., was obliged to call frequent parliaments. The Tudor sovereigns managed to make their parliaments register their will, but in the time of the Stuarts there was the memorable struggle between king and parliament, which became a civil war. In 1689 parliament made a settlement of the crown, and in 1694 passed a triennial act, which said that not more than three years must pass without the calling of a parliament. This was due to the action of Charles I. and Charles II., each of whom ruled without a parliament for a long period.

Parliamentary government, or the control of the executive by the legislature, especially by that branch which represents the people, was a direct consequence of the victory of the parliament in the Civil War; but it only took shape at the Revolution of 1688. In 1715 a septennial act was passed by which a parliament could sit for seven years, and this remained the law until 1911, when the Parliament Act reduced the period to five years. Nevertheless, parliament, being a sovereign body, can prolong its own existence as it did during the Great War. The Parliament Act of 1911 made the House of Lords subordinate to the House of Commons. The Lords is now a revising chamber only. It can delay the passing of a bill into law for two years, but that is all. If the Commons, under the required conditions, pass a measure three times that bill becomes law, whether the Lords oppose or not. Money bills cannot be touched by the Lords.

A parliament is called together by the sovereign. Its sittings are divided into sessions, each occupying a year or thereabouts, and each opened by the king or his representative. Each session is prorogued, but a parliament is dissolved. This is done on the advice of the Prime Minister and a general election must follow.

The parliaments in Canada, Australia, South Africa and elsewhere follow very largely the British model, both in constitution and practice, except that their second chambers contain no hereditary elements and have rather more

power than the House of Lords. See COMMONS, HOUSE OF; LORDS, HOUSE OF.

Parma City of Italy. It lies in a fertile tract of the Plain of Lombardy. The Royal University of Parma, founded 1601, now has faculties in law, medicine and natural science. Considerable trade is carried on in grain, cattle and dairy produce. Pop. (1921) 58,255.

Parma Duchy of. Papal possession from 1512-1545, when the Pope Paul III. (Alexander Farnese) invested his bastard son, Pierluigi, with the duchies of Parma and Piacenza. There were eight dukes of Parma from 1545 to 1731. The duchy then passed and re-passed alternately into the hands of Spain and Austria till 1860, when it was formally incorporated into the Kingdom of Italy, becoming a province with an area of 1258 sq. m. and a pop. (1921) of 353,283. Capital, Parma.

Parmoor Baron. English politician. Charles Alfred Cripps was born Oct. 3, 1852, and educated at Winchester and New College, Oxford. Called to the bar in 1877, he became a Q.C. in 1890, and made a great reputation as an ecclesiastical lawyer. He was elected M.P. for the Stroud Division of Gloucestershire in 1895, representing that constituency until 1900. Later he represented Stretford, Lancs., and Wycombe Division of Bucks. He was made a K.C.V.O. in 1908 and elevated to the peerage in 1914. Specially appointed a judicial member of the Privy Council in 1914, he became Lord President of the Council in the Socialist Ministry of 1924 and held this post again from 1929-31. He has written on *Principles of Compensation and The Laws of Church and Clergy*.

Parnassus Mountain range in the Greek province of Phocis, the principal feature of which is the mountain of the same name, 8000 ft. in height, and famed in Greek mythology as the abode of the Muses. Near the summit was the Castalian spring, draughts from which were supposed to give poetic inspiration. On the lower slopes was the cave of Delphi (q.v.) from which oracles were delivered by the Pythoness.

Parnell Charles Stewart. Irish Nationalist politician. Born June 27, 1846, he studied at Cambridge and in 1870 was returned as a Home Ruler for County Meath. Throwing himself energetically into Irish political affairs, he skillfully organised the Irish Party in the House of Commons and ruled it with a rod of iron. Having initiated a system of deliberate obstruction in Parliamentary business he and his followers acquired considerable influence and, after wrecking the first Salisbury Government, contracted an alliance with Mr. Gladstone in the hope of realising Irish Home Rule ambitions. Attacked by *The Times* for his supposed complicity in Irish crime Parnell brought an action and obtained £25,000 damages. An entanglement in a divorce case led to the loss of his leadership of the Irish Party and his withdrawal into private life. He died at Brighton, Oct. 6, 1891.

Parotid Gland Name given to the largest of the salivary glands, situated below and in front of the ear and filling the recess beneath the angle of the lower jaw. An inflammatory condition of the parotid gives rise to the disease known as mumps, and it is also the seat of tubercular abscesses.

Parr Thomas. English centenarian. Believed to have been the longest lived of British centenarians, although the reputed year of his birth, 1483, has been questioned. "Old Parr," as he is traditionally called, was a Shropshire farm servant and after marrying his second wife at the age of 120, went on working for a further ten years. He went to London to see Charles I., and died from a surfeit of royal hospitality in 1635.

Parrakeet Name indefinitely applied to various small parrots, often with long and slender tails. Among aviary favourites are the red-billed genus *Palaeornis*, including the Indian rose-ringed, ring-necked and blossom-headed parakeets. Australian budgerigars and other grass-parakeets are favourite cage-birds. There are also swamp-parakeets and ground-parakeets. See LOVE-BIRD.

Parramatta Town of New South Wales. It is noted for its orchids and orange-tries. It has a well-known public school, King's School. Pop. (1921) 14,930.

Parrot Order of birds of high intelligence and organisation, inhabiting tropical and subtropical regions (*Psittacae*). The upper jaw is hinged to the skull. They are usually expert climbers, each foot having two toes forward and two backward. Of 500 species S. America has most, followed by the E. Indies, Australia and Polynesia, a few in Asia and Africa, and one in N. America. Many have gorgeous colouring, the sexes being usually alike. Some readily learn to talk, especially the African grey parrot. See COCKATOO, LORY, MACAW, PARRAKEET.

Parry Sir Charles Hubert. English composer. Born at Bournemouth, Feb. 27, 1848, he was educated at Eton and Exeter College, Oxford. He obtained his Mus. Bac. at age of 18, Mus. D. Cambridge, 1883, Oxford, 1884, Dublin, 1891 and was knighted, 1898. He became First Professor and later Principal of the Royal College of Music, Chorus of Oxford University, 1883, and Professor of Music in 1900. His works include concertos, symphonies and other compositions. He also wrote on music in Grove's Dictionary and his *Studies of Great Composers and The Evolution of the Art of Music* are recognised classics of musical literature. He died Oct. 7, 1918.

Parry Sir William Edward. Arctic explorer. Born at Bath, Dec. 19, 1790, the son of an eminent physician, he entered the Royal Navy and served against the Danes in 1808. In 1810 he was sent to the Arctic for protection of the whale fisheries. Later he took part in five Arctic expeditions, four of which he commanded throughout. The first, under Sir John Ross (q.v.), was in 1818, the others in 1819, 1821-23, 1824-25, and 1827. The last was an unsuccessful attempt to reach the North Pole on sledges from Spitzbergen. To his credit is the discovery of Barrow Strait and Melville Island. Knighted in 1829 and appointed Departmental Comptroller in 1837, he became Superintendent of Haslar Hospital in 1846. He was made rear-admiral, 1852, and governor of Greenwich Hospital, 1853. He died July 8, 1855.

Parsees (or Parsis). Religious community in India and parts of Persia. At the 7th century Arab conquest many Persians who refused to embrace Islam fled to Gujarat, taking with them their Zoroastrian faith; most of them afterwards settled in

Bombay. Their descendants, still speaking Gujarati, now comprise 102,000 in India, and about 8000 in Persia.

Parsley Biennial umbelliferous herb, perhaps of Mediterranean origin (*Petroselinum crispum*). Introduced into Tudor England, its crisp, curled, mossy leaves are much used when fresh for garnishing, and either fresh or dried for flavouring. A Hamburg variety, with turnip-shaped root, is boiled for use in soups or eaten as a separate dish.

Parsnip Biennial umbelliferous herb, native of Europe and Siberia (*Peucedanum sativum*). Wild in Britain, its thin, woody root has become, under cultivation since Roman times, a long, succulent, whitish, tapering root, palatable and nutritious, containing sugar, and surpassing the carrot as a milk-producing cattle-food. It also serves for making country wine. See COW PARSNIP.

Parsons Sir Charles Algernon. British engineer and inventor of the steam turbine. Born June 13, 1854, the fourth son of the 3rd Earl of Rosse, he was educated privately and at St. John's College, Cambridge. He founded the firm of C. A. Parsons & Co., Engineers, Heaton, Newcastle-on-Tyne, and was also Chairman of the Parsons Marine Steam Turbine Co., Ltd., and Chairman of Rosse Ltd., Optical Works, Clapham Common. He was created K.C.B., 1911 and given the O.M., 1927. He was President of the Institute of Physics, British Association, and North-East Coast Institution of Engineers and Shipbuilders. He died Feb. 12, 1931.

Parsonstown (or Birr). Town in Offaly, Irish Free State, 62 m. W.S.W. of Dublin. In the castle, belonging to the Rosse family, there is an observatory containing the great reflecting telescope installed by Lord Rosse, with which important astronomical discoveries have been made. Pop. (1901) 4438.

Parthenogenesis Term in biology for a method of reproduction in which an individual is developed from an unfertilised egg-cell. In some types parthenogenesis has reached a stage where the male is absent entirely as in some gall flies and saw flies in others such as the aphides or green fly males appear after a succession of parthenogenetic stages. In the honey bee the eggs of the queen bee if unfertilised develop nevertheless and become males.

Parthenon Temple at Athens dedicated to Pallas Athene. Considerable ruins are still in existence. It was begun about 450 B.C., under the direction of the sculptor, Phidias. It was 227 ft. long and 101 ft. in breadth and was pure Doric in style. In beauty of design and decoration it has no equal. It suffered damage during a siege by the Venetians in 1687 and some of the sculpture was removed by Lord Elgin in 1812. These pieces are in the British Museum under the name of the Elgin Marbles (q.v.).

Parthia In ancient geography a country S.E. of the Caspian and E. of Media. The Kingdom of Parthia, which had previously belonged to the empire of the Seleucidae, lasted from about 250 B.C. to about A.D. 190. The Parthian Army consisted chiefly of mounted archers, and from their habit of turning and shooting their arrows when in feigned retreat the term "parthian glance" is derived. The Parthians were long in conflict with Rome, and in 53 B.C., defeated and slew

Crassus. They were finally subdued by Trajan Antoninus and Caracalla.

Partick Suburb of Glasgow, separated from it by the Kelvin. It has shipbuilding yards and paper-staining, flour-milling, machine-making and other hardware industries.

Partnership Defined in the Partnership Act of 1890 as "the relation which subsists between persons carrying on a business in common with a view to profit." The relation, however, between members of a company registered under the Companies Act or formed by Royal Charter is not a partnership within the meaning of the Act. A private partnership cannot be formed of more than 10 persons for banking or 20 for any other business. A "sleeping partner" may participate in the profits without taking any active share in the management and without appearing to the world to be a partner, but, like any other partner, he is responsible for the firm's debts. Many other regulations and conditions are set forth in the Act.

Partridge Name denoting various sub-family. The British grey partridge, *Perdix cinerea*, preferring arable land, extends throughout Europe, being associated in Asia with related forms. The red-legged or French partridge, *Carex rufa*, a native of S.W. Europe introduced into Britain about 1770, is now common, especially in eastern England, preferring uncultivated, moorland. Partridge-shooting in Great Britain and Ireland is legal from Sept. 1 to Feb. 1. See GAME.

Partridge Sir Bernard. English artist. Born in London, Oct. 11, 1861, son of Professor Richard Partridge, F.R.S., President of Royal College of Surgeons. He was educated at Stonyhurst College and worked from 1880-84 in stained glass, designing and decorative painting, subsequently in book and press illustration. He joined the staff of *Punch* in 1891, later becoming its chief cartoonist, and was knighted in 1925.

Pascal Blaise. French philosopher, mathematician and scientist. Born June 19, 1623, at Clermont-Ferrand in Auvergne, he was the son of a president of the Court of Aids who settled later first in Paris and subsequently in Rouen. At the latter centre Blaise came into close touch with the Jansenists, with whose doctrines he became identified. To this period belong various scientific studies and researches, including the Puy de Dome experiments on atmospheric pressure and the invention of an ingenious calculating machine. In 1647 Pascal returned to Paris, and in 1654 underwent a second conversion. His famous *Provincial Letters*, an ironical exposition of Jesuit moral theology (1656-57), created a profound sensation and are still regarded as models of style. Of his *Pensées*, first published posthumously in 1669, numerous editions—French and English—have appeared. He died Aug. 19, 1662.

Pasha Turkish and Egyptian title. Originally it was bestowed only on military commanders who were graded according to the one, two or three horse-tails which they were empowered to display when on a campaign as symbols of authority. Later the title was granted also to civilian high officials, Christian as well as Moslem, in Turkish or Egyptian service.

Passchendaele Low ridge in Belgium, about 7½ m.

N.E. of Ypres, the scene of heavy fighting in the Great War. In June, 1917, the Second British Army under Sir Herbert Plumer advanced and stormed the Messines-Wytschaete Ridges, but it was not until Nov. 6 that the Passchendaele Ridge was carried, and the Third Battle of Ypres concluded. In the great German offensive of March-April, 1918, Passchendaele was necessarily abandoned, but was recaptured in the general advance of the Allies shortly before the conclusion of the Armistice.

Passfield Baron. Sidney James Webb was born July 13, 1859. At one time he was a clerk in the lower division of the War Office. A noted economist, he became, in 1912, professor at the London School of Economics. In 1922 he entered Parliament for the Seaham division, Co. Durham. He has been a member of several royal commissions and numerous departmental committees. In the Socialist Ministry of 1924 he was President of the Board of Trade, and in 1929 he became Secretary of State for the Colonies. He is the author of many works on economic and social subjects.

Lady Passfield, better known as Beatrice Webb, is the daughter of Richard Potter, at one time Chairman of the G.W. Rly. She is keenly interested in social and industrial questions, and was a member of the Royal Commission on Poor Law and Unemployment, 1905-09. She is the author of *The Co-operative Movement in Great Britain* and, with her husband, whom she married in 1892, of the *History of Trade Unionism* and other works.

Passion The. Term denoting the sufferings of Jesus Christ from the agony in the Garden to the death on the Cross. The recital of these sufferings in the early church at Passiontide was accompanied by the chanting of the narrative portions by selected male voices, and the choral representation of the crowds. Under Reformation influence musicians wrote definite compositions, exemplified pre-eminently in J. S. Bach's *Passion of St. Matthew*. Representations in art are also called Passions, e.g., Albert Dürer's.

Passion Flower Large genus of climbing herbs and shrubs (*Passiflora*) natives of tropical S. America. The common blue passion flower, *P. caerulea*, is hardy in Britain. See CORONA.

Passionist Roman Catholic priestly order, entitled the Congregation of Discalced Clerks of the Most Holy Cross and Passion of our Lord Jesus Christ. Founded by S. Paul of the Cross, 1720, it received papal sanction, 1737, and reached Britain, 1841, the headquarters since 1876 being at Highgate. The Passionist fathers conduct missions and retreats.

Passion Play Religious drama presenting scenes of Christ's passion. A form of mystery or miracle-play characteristic of Mediaeval Europe, it has survived at Oberammergau (q.v.). In 1930 the play was presented 33 times, May-Sept. by about 600 of the villagers as a religious act.

Passive Resistance Term used to describe deliberate refusal on conscientious grounds to comply with laws, regulations or orders, coupled with willingness to undergo the prescribed penalties. Anyone submitting to imprisonment in consequence of non-payment of what he or she considers to be unjust rates or other dues may be classed as a passive resister.

Passover Jewish festival. It was traditionally instituted by Moses to commemorate the passing over of the Hebrew thresholds, on which the blood of the sacrificial lamb had been sprinkled, when Egypt's firstborn were smitten at the time of the Exodus. With it was associated a seven-day festival of unleavened bread. The twofold feast was observed down to the destruction of Jerusalem, A.D. 70. That of unleavened bread alone is still observed by Jews, that of the Pentateuchal Passover by the Samaritans.

Passport A permission to travel necessary in the case of most foreign countries, and, when granted, ensuring some measure of protection. Passports are granted by the Foreign Office to natural-born British subjects, and to persons naturalised in the U.K., in the British Dominions and Colonies and in India. Applications must be accompanied by two copies of the applicant's photograph and a signed declaration in accordance with the Regulations. British passports are only available for travel to the countries named thereon, but may be endorsed for additional countries. They must be renewed after two years from date of issue.

Pasteur Louis. French chemist. Born at Dôle, Dec. 27, 1822, he studied at Besançon and Paris, where in 1867, after holding academic posts at Strasbourg and Lille, he became Professor of Chemistry at the Sorbonne. He was elected member of the French Academy in 1882. His researches in fermentations proved of great value in the manufacture of vinegar and the prevention of wine diseases. Thanks to his experiments prophylactic treatment of diphtheria, tubercular disease, cholera, yellow fever and plague, as well as hydrophobia, has become possible. He died Sept. 28, 1895.

In 1888 the **Pasteur Institute** was founded by public subscription, as a research laboratory.

PASTEURISATION. Method of preserving milk, and rendering harmless any disease germs it may contain, particularly tubercle bacilli. The milk is kept for half an hour at a heat of 145-150° F., and then cooled. In some countries pasteurisation is enforced by law before milk can be sold.

Pastorale (1) A kind of operetta on rustic themes originating with the Renaissance stagings of Virgil's *Eclogues* and culminating in the spectacular ballets of the French Court in the 17th century, of which Lully's *Acis and Galathee* is an example. (2) An idyllic composition conventionally in compound time with simple melody and sometimes a drone bass.

Patagonia Region of S. America. Discovered by Magellan in 1520, it comprises the southern extremity of S. America and has been divided politically since 1881 between Chile and the Argentine, the Andes forming the boundary. The aboriginals, who were of unusually large stature, are now nearly extinct. Coal is found in the Argentine section, and in the Chilean large tracts are devoted to sheep-farming. East of the Andes Patagonia is largely an elevated plateau. Western Patagonia is damp and forested.

Pateley Bridge Market town of Yorkshire, W.R., 28 m. north west of York and 213 from London by the L.N.E. Rly. Situated on the Nidd, it is a centre for livestock farming and has stone-quarries and lead mines. Pop. (1931) 5555.

Patent Grant from the Crown by Letters Patent to an inventor of the sole right of making, using or selling his invention during a specified period. It is essential to the validity of the patent that the subject-matter of it should be an invention, that the invention should be new, and that it should be useful, i.e. fulfil the purpose for which it was designed by the patentee. In applying for a patent it is usual to submit a Provisional as well as a Complete Specification, and the former, if filed separately and accepted, gives protection for nine months. The Complete Specification is the final basis of the patent and, if unopposed and the regulated fees are paid, the grant of the patent remains in force for a period not exceeding sixteen years. Infringement is actionable. Most foreign countries have their own patent laws and the cost of a world-wide patent may run into hundreds of pounds.

Patent Office Department of the British government. It deals with all applications for Letters Patent in Great Britain and is situated in Southampton Buildings, Chancery Lane, London, W.C.2. At its head is a Comptroller-General. The Patent Office publishes specifications of accepted inventions. It has an excellent reference library.

Pater Walter Horatio. English critic and man of letters. Born in London, Aug. 4, 1839, he was educated at King's School, Canterbury, and Queen's College, Oxford. His works, which are famed for their style, include *Studies in the History of the Renaissance* (1873); *Marius: the Epicurean* (1885); *Imaginary Portraits* (1887); *Appreciations* (1889) of Lamb, Wordsworth, Coleridge and others; and *Miscellaneous Studies*, posthumously published in 1895. He died at Oxford, July 30, 1894, leaving unfinished a medieval romance, *Flanon de la Tour*, which was subsequently published in 1897.

Paternoster Row London thoroughfare. It was famous in Queen Elizabeth's time for its taverns. Pepys, in 1660-66, paid several visits to the mercery shops which then flourished here. At No. 33 *Robinson Crusoe* was published in 1720. Nos. 48-49 occupy the site of the "Old Chapter" Tavern, frequented by Goldsmith. This became the Chapter Coffee House, at which Charlotte and Anne Brontë lodged on their first visit to London in 1848.

Pathan Name applied throughout India to the Iranian peoples of the N.W. Frontier Province and to related frontier tribes in E. Afghanistan. Of Moslem faith, their language is Pashto.

Pathology Study of disease. It seeks to determine the causation of diseases, their anatomical and physiological features, and the structural changes and morbid processes which they present. Besides human and animal diseases, bodily and mental, plant-diseases are also the concern of pathology. Experimental pathology studies morbid processes induced artificially in other organisms.

Patina Greenish, varnish-like film which forms on ancient bronze and copper through exposure to atmospheric conditions. It can also be produced by the action of certain chemical substances.

Patio Architectural term derived from the Spanish and applied to the open courtyard or enclosure connected with many houses in Spain and Spanish-American countries.

Patmore Coventry Kersey Dighton. English poet and critic. Born at Woodford in Essex, July 23, 1823, he was a librarian at the British Museum from 1847 to 1868. His first volume of poems was published in 1844, his second in 1853. His best-known work, *The Angel in the House*, dealing with domestic love, appeared in 1854. Collected editions of his poems were issued in 1878 and 1886. He died Nov. 26, 1896.

Patmos Aegean island. Small and mountainous, one of the Sporades, in the Grecian Archipelago off the W. coast of Asia Minor, it formerly belonged to Turkey, but is now part of Greece. Here S. John is supposed to have lived in exile about A.D. 90, and to have seen the vision described in the Book of Revelations. There is a monastery dedicated to S. John the Divine in the island. Pop. (1927) 2550.

Paton Sir Joseph Noel. British painter. Born at Dunfermline, Dec. 13, 1821, he studied at the Royal Academy, London. Subsequently he became a member of the Royal Scottish Academy, and was Queen's Limner for Scotland from 1865. He was knighted in 1867. He excelled in the treatment of allegorical, religious and legendary subjects, among his most notable pictures being "The Pursuit of Pleasure," "Christ and Mary at the Sepulchre" and "Mors Janua Vitae." He was a competent sculptor, and published two volumes of poems. He died Dec. 26, 1901.

Patriarch Head of a family or tribe. The name denotes specifically various O.T. figures, either fathers of the human race, e.g., Noah, or progenitors of the Hebrew people, e.g., Abraham, Isaac and Jacob, their forefathers and Jacob's twelve sons. Applied to the head of the Jewish Sanhedrim, it denoted in early Christianity outstanding metropolitan bishops, being limited in the 7th century to the bishops of Alexandria, Antioch, Constantinople, Jerusalem and Rome. The pope is styled patriarch of the West. See EASTERN CHURCH.

Patricia District of Ontario, Canada. Its area is 146,400 sq. m. Formerly part of the N.W. Territories, it was added to Ontario in 1912, and named after Princess Patricia, daughter of H.R.H. The Duke of Connaught, who was Governor-General of Canada at the time.

Patrick Saint. Patron saint of Ireland. Dumbarton, Scotland, he was captured by Irish raiders when 16 years old, escaped to the continent and studied at Tours. Pope Celestine I. consecrated him bishop, entrusting him with Ireland's conversion. Landing in Wicklow, he established missionary settlements in Armagh and elsewhere. He died at Saul, near Downpatrick, according to some legends as late as 493 but more probably in 461. He left a Confession, an epistle to Coroticus and a hymn. He is commemorated on March 17.

Patron (and Patronage). Term originally applied to a Roman patrician to whom plebeians, under the name of clients, attached themselves for protection. Now largely used in connection with Church benefices, patrons of which have the right of nominating, subject to episcopal confirmation, incumbents when the living falls vacant. The patronage of many benefices is in the hands of bishops, colleges and other institutions.

Patteson John Coleridge. English bishop. Born April 1, 1827,

after a brilliant Oxford career, he took Orders and joined Bishop Selwyn in missionary work. Consecrated Bishop of Melanesia in 1861, he served 10 years in that capacity, and was attacked and murdered by natives, Sept. 20, 1871.

Patti Adelina. Famous singer. Born in Madrid, Feb. 19, 1843, she made her operatic debut in 1859 in "Lucia di Lammermoor." She first appeared in London in 1861. She was received everywhere throughout her career with extraordinary enthusiasm. She made her last appearance at the Albert Hall in 1906. She married three times, and died Sept. 27, 1919.

Pau City of S.W. France. It is a noted winter health resort. Henry VI. is said to have been born in one of the rooms of the castle (1553). Pop. 31,329.

Paul Saint and Apostle. Born at Tarsus in Asia Minor, he was trained as a Rabbi under Gamaliel at Jerusalem. As a young Pharisee he took an active part in the persecution of Christ's followers, but on his way to Damascus for the purpose of making further arrests, he saw Christ in a vision and was converted. After three years' preparation he re-visited Jerusalem, and then embarked on his first mission tour in Cyprus, Pisidia, Pamphilia and Lycaonia. On his return he engaged in a controversy with S. Peter concerning the admission to the Christian Church of Gentiles, whom he championed, and to whom his subsequent missionary efforts were devoted. His second and third missions took him through Galatia and Thrygia to Macedonia and Achaia. Tried at Caesarea for causing disturbances he was sentenced to imprisonment and, appealing to Caesar, was sent to Rome where, after two years' captivity, tradition says, he was executed under Nero in A.D. 64.

It is impossible to overestimate the importance of S. Paul in Christian history. More than any other he was responsible for the spread of Christianity throughout the Roman Empire, while his theological and moral principles have exerted a profound influence on later thought and on the civilised world.

Paul, Epistles of. See ROMANS, CORINTHIANS, GALATIANS, EPHESIANS, PHILIPPIANS, COLOSSIANS, THESSALONIANS, TIMOTHY, TITUS, PHILEMON, HEBREWS, EPISTLE TO.

Paul I. Tsar of Russia. Born Oct. 1, 1754, he was the second son of Peter III. and the Empress Catherine II., at whose death in 1796 he succeeded to the throne. He rapidly became unpopular by reason of his violent temper and disposition. Having first declared in favour of the Allies against France, he quarrelled with England and then joined Bonaparte. His nobles conspired to compel him to abdicate, and in a scuffle with them he was strangled and killed, March 11, 1801.

Paul-Boncour *Joseph.* French politician. He was born at S. Aignan, Aug. 4, 1873. As an independent socialist he was elected to the Chamber and became labour minister (1911) in the Cabinet. After the war, in which he served, he took an important part in the work of the League of Nations, as a French representative. In 1932 he became minister for war in the Cabinet headed by Edouard Herriot (*q.v.*).

Pauperism In England a pauper is a person who receives poor law relief for himself, or his dependents, and before he can do so, must prove himself

destitute and incapable of providing the physical necessities. The relief is either "indoor," which means maintenance at a workhouse, infirmary, asylum or school; or "outdoor," when allowances are made in money, kind or medical attendance. In 1930 1,205,417 persons obtained poor law relief in England, as against 1,240,666 in 1929.

Pavia Town of Lombardy, Italy. Situated on the Ticino, 2 m. above its junction with the river Po, it is on the main line from Milan to Genoa. Here in 1525 Francis I. of France was defeated and captured by Lannoy, Viceroy of Naples. The battle was one of the first to show the superiority of firearms over pike and lance. Formerly a fortress it was captured and sacked by Napoleon in 1796. Volta made his first electrical experiments here. There are numerous iron foundries, military engineering and electrical production works. Pop. (1921) 42,042.

Pavlova Anna. Russian dancer. Born at St. Petersburg, Jan. 31, 1885, she entered the Imperial Ballet School at the age of 10. Attached to, and later *prima ballerina* of, the Marianski Theatre, St. Petersburg, she subsequently appeared at the Imperial Opera House, and first visited London with Michael Mordkin in 1910. In 1923-24-25 she appeared with her own company at the Covent Garden Opera House, always meeting with enthusiastic reception. She died Jan. 22, 1931.

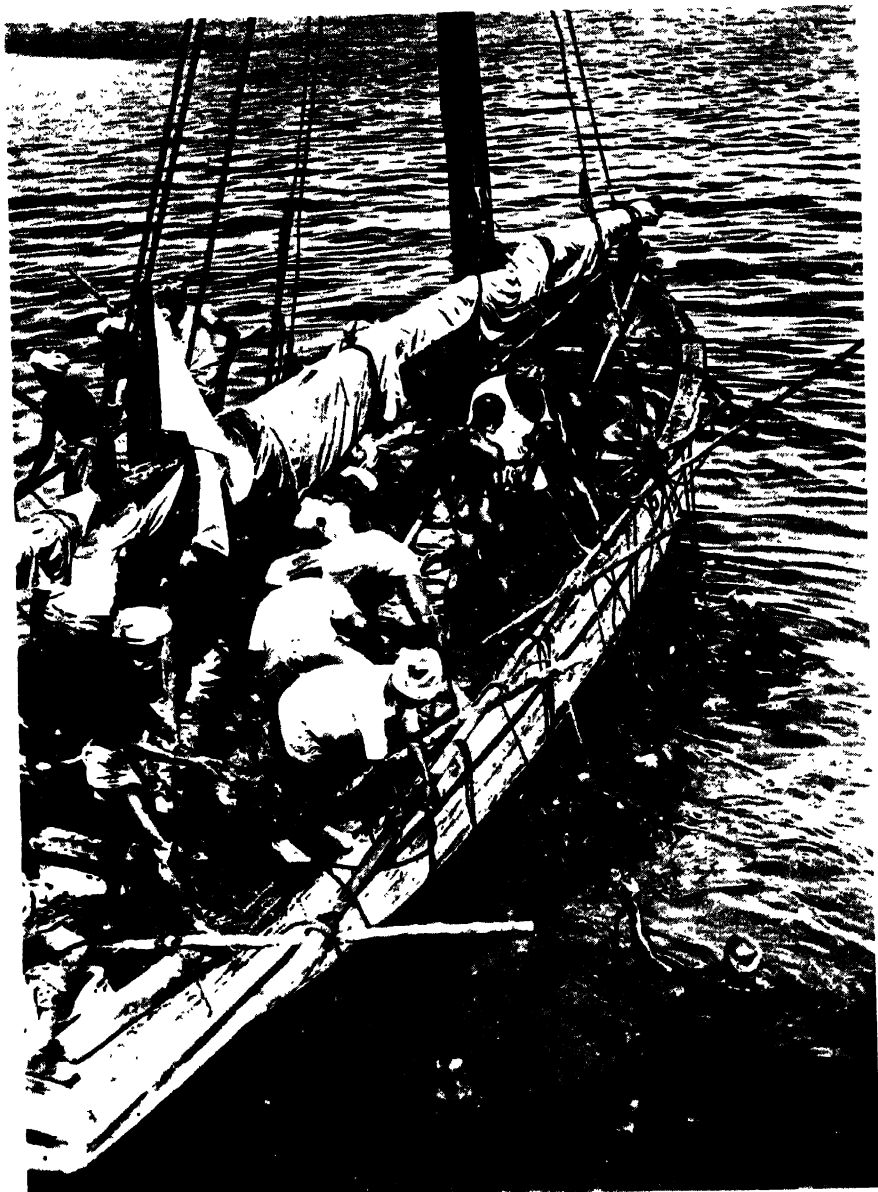
Pawnbroker Pawnbroking, or the articles pawned or pledged, is of great antiquity; pawnshops existing in China at least two or three thousand years ago. Greeks and Romans were familiar with pawnbroking, but among the Jews it was expressly inhibited under the Mosaic Law. The Jews, however, in mediaeval times were almost the only pawnbrokers in England till they were succeeded by the Lombards, who introduced the now familiar trade sign of the three golden balls. The pawnbroker's licence dates from 1785, and there has since been considerable legislation in England on the subject of pawnbroking. The latest enactment was the Pawnbrokers' Act of 1872, which included numerous regulations respecting interest, the sale of unredeemed pledges and so forth.

Paxton *Sir Joseph.* British architect. Born Aug. 3, 1801, his principal claim to fame is his design for the Crystal Palace in 1851. He began his career as head gardener to the Duke of Devonshire at Chatsworth, where he exercised his ingenuity in designing glass houses. He was knighted in 1851, was elected Member for Coventry in 1854 and died June 8, 1865.

Paysandú City of Uruguay. Situated on the E. bank of the Uruguay, 170 m. N. of Buenos Aires, it is the capital of the Paysandú department, occupying 5115 sq. m., and raising cattle and sheep. Their products, livestock, wool, hides, refrigerated, salted and canned meats and tongues, constitute the town's prosperity. Metal ores are mined. Pop. 22,000; dept. 61,000.

Pea Annual climbing leguminous herb (*Pisum sativum*). Introduced into Tudor England, field peas preceded the garden forms, which have arisen from cross-fertilisation and selection. The sweet-pea (*Lathyrus*) is closely allied.

Peabody *George.* American merchant and philanthropist. Born at S. Danvers, Mass., Feb. 18, 1795, he came to



PEARL FISHING.—Native divers in the Gulf of Manaar between Ceylon and India about to descend to the rich oyster beds. In the centre foreground is a stone on the end of a rope which helps them to sink to greater depths in the hollows of the ocean "floor."

[Topical

London in 1837, where he spent his large fortune in philanthropic schemes. The Peabody Trust was established in 1862. It was designed to provide houses for the working classes of London. He died in London, Nov. 4, 1869, and was buried in America.

Peace River of Canada. It rises in the Rocky Mts., in British Columbia, and flows into Alberta. It is about 400 m. long and falls into the Great Slave Lake. Its tributaries include the Smoky and the Finlay. The Valley of the Peace contains a very rich coal field, and plans have been formulated for developing the district.

Peach Fruit-tree of the rose order, (*Prunus persica*). Cultivated in ancient Persia and China, perhaps derived from the almond, it was introduced into Tudor England. The roundish fleshy drupes, 2-3 in. across, covered with down, ripen in Britain in favourable situations, being usually grafted on plum or almond stock and fan-trained to walls with S.W. aspect. Large market supplies are grown in France, Delaware and California, which has developed a large canning and drying industry.

Peacock Male bird of a genus of game-fowl (*Pavo*), indigenous to India and S.E. Asia. In the breeding season, its upper tail-coverts develop spray-like webs interspersed with glittering "eyes," the whole train being displayed vertically in a semi-circle. The more plainly feathered peahen lacks the train. The Common *P. cristatus* of India and Ceylon, was domesticated in antiquity; albino examples furnish white peafowl. The Burmese *P. muticus*, extending to Malaya and Java, is more brilliant still.

Peak District of Derbyshire, extending from Chesterfield to Buxton, and from Ashbourne to Glossop. It forms the S. end of the Pennine Hills. Kinder Scout is the highest point; it is 2088 ft. At Castleton is found the famous Blue John (purple fluospar). Chatsworth (q.v.) is situated in this district.

Pear Fruit-tree of the rose order (*Pyrus communis*), native from E. Europe to W. Asia and the Himalayas. The wild pear of British thickets is doubtfully indigenous. There are innumerable varieties, usually grafted on free or pear stock, or, for the dwarf and pyramidal trees of gardens, on quince stock. Fermented pear-juice furnishes the alcoholic beverage called perry. Pearwood, hard and even-grained, serves for drawing-squares and curves, and when bonised for camera-shutters.

Pearl Calcareous secretion formed in many bivalve molluscs, but chiefly in the so-called pearl oysters (*Nucula*), and the freshwater mussels of the genus *Unio*. A pearl consists of extremely thin concentric layers of calcium carbonate deposited around some foreign object or parasite, and the iridescent colours are due to interference of light caused by the thinness of the layers. Pearls vary in colour from white to pink or black, their value depending upon their size and purity of colour. The principal fisheries are in the Persian Gulf, the Gulf of Manar in Ceylon, the South-Pacific and the Gulf of Mexico.

Peary Robert Edwin, American explorer. Born May 6, 1856, he joined the American Navy, and, after working on the survey for the Nicaragua Ship Canal, was enabled to carry out the Arctic exploration. In 1891-92 he led a sledging expedition towards the North Pole, a journey of 1300 m., and,

after other expeditions, succeeded in discovering the North Pole, 1909. He died Feb. 19, 1920.

Pease Quaker family founded by Joseph Pease, a woollen manufacturer at Darlington, somewhere about 1760. His son, Edward (1767-1858), extended his activities to the coal and iron industries, and also to banking. Joseph and Henry, Edward's sons, were both Members of Parliament, as were members of the next two generations. Sir Joseph Whitwell Pease (1828-1903) became a baronet in 1882. His son Alfred Edward was well-known as a sportsman, while Joseph Albert was a politician and was created Lord Gainsford in 1916. Herbert Pike Pease was also a politician, and in 1923 became Baron Daryngton.

Peat Partially decomposed vegetable matter found on or near the surface in many of the cooler parts of the world in swampy places. Its carbon content is sufficiently high to enable it to be used for fuel.

Peccary Genus of hoofed mammals constituting the indigenous swine of America (*Dicotyles*). They are tailless, have the upper tusks directed downwards and lack the outer toe on the hind feet. Fierce and gregarious, the collared peccary, 3 ft. long, ranges from Arkansas to Patagonia, the somewhat larger white-lipped variety from British Honduras to Paraguay.

Peckham London district in the metropolitan borough of Camberwell, S.E. Peckham Rye Park was opened in 1894 and has more than 42 acres.

Pectin Series of vegetable mucilages obtained from various seeds, fruits and roots. In the beetroot, carrot and the pulp of ripe fruits such as the apple and pear, a soluble colloidal material, pectose, occurs, and by the action of a ferment is converted into pectum, which forms the basis of fruit jellies and jams.

Pediculosis (or Phthiriasis). Skin affection occasioned by lice on the body. These are wingless, suctorial parasitic insects related to bugs and bird-lice. Both the head-lice and the crab-lice, which infests the pubic hair and sometimes armpits and eyebrows, are removable by paraffin preparations. The clothes-lice or body-lice requires bathing in baking soda, applying sulphur ointment, and baking the clothing in a disinfecting oven. Apart from their irritation, lice are noxious because they may spread typhus and some relaxing fevers.

Pediment Architectural term for the low sloping gable, usually triangular in shape, on the front of classic buildings and revived as an ornamental structure in Renaissance architecture usually over porticoes and windows, supported by carved brackets. Sometimes the pediment is bowed, or when the central part is omitted it is termed a broken pediment.

Pedometer Instrument resembling in form a watch, used for registering the number of steps taken by a person in walking, thus determining the distance covered. A weight which swings with the movement of the body causes the mechanism to revolve and this movement is recorded on a dial, adjustments being made for the length of the step.

Peebles Burgh and county town of Peeblesshire. Situated on the Tweed, it has cloth manufactures. It is served by the L.N.E. and L.M.S. Ryas. Pop. 5637.

Peeblesshire County of Scotland, otherwise known as Tweeddale. It has an area of 347 sq. m. It is watered by the River Tweed and its affluents, and is mainly a pastoral, sheep-rearing county. Its county town is Peebles. It is served by the L.N.E. and L.M.S. Ryrs. Pop. 15,300.

Peel Small fortified tower, usually square and of massive construction, it was common in the border counties of England and Wales in the 15th and 16th centuries. They were used as refuges from bands of raiders. Several examples are still standing in Cumberland and adjacent counties.

Peel Watering place and fishing town on the W. coast of the Isle of Man. It has historical associations and interesting ruins of the 12th century. Pop. 2455.

Peel Viscount. English title, created in 1895 and bestowed upon Arthur Wellesley Peel, youngest son of Sir Robert Peel. Born Aug. 8, 1829, he was educated at Eton and Balliol College, Oxford, had a distinguished parliamentary career and held various offices, being chosen Speaker in 1885. He was created a viscount when he retired in 1895, and died Oct. 24, 1912. He was an ardent temperance reformer.

William Robert Wellesley Peel, the 2nd viscount, was born Jan. 7, 1867, the eldest son of the 1st viscount, and was educated at Harrow and Balliol College, Oxford. He was called to the bar in 1893, and sat in Parliament, first for a division of Manchester (1900-06), and then for Taunton (1909), until he entered the House of Lords at his father's death in 1912. He held various offices: in 1922 he was Secretary of State for India, and in 1931 became Lord Privy Seal in the National Government, an office which he held for a short period only. He was made an earl in 1929.

Peel Sir Robert. British statesman. Born near Bury, Lancs., Feb. 5, 1788, he was educated at Harrow and Christ Church, Oxford, and entered Parliament at the age of 21, holding office as Secretary for Ireland when he was 24. In 1822 he became Home Secretary, and in this capacity formed the new police force, known to this day as Peelers. He was three times Prime Minister, in 1834, 1839 and 1841, on this last occasion holding the office for five years. Peel now restored the disorderly national finances, passed the Bank Charter Act which still regulates the country's currency, and repealed the penal laws against Catholics. Finally, in 1846, he repealed the Corn Laws in face of tremendous opposition, but was defeated on the Irish Coercion Bill, resigned, and went into opposition. He died July 2, 1850.

Peel John. Cumberland yeoman. Born Nov. 13, 1776, he is chiefly known as the hero of the song, "D'ye Ken John Peel?" which was written by J. W. Graves about 1829. He was born and lived at Coldbeck, where he died Nov. 13, 1854.

Peele George. English dramatist. Born about 1558, and educated at Christ's Hospital and Christ Church, Oxford, he wrote historical plays and masques which had considerable influence on Shakespeare and Milton. These include *Edward I.*, *The Arraignment of Paris*, and *David and Fair Bethsabe*. He died about 1598.

Peerage Name used for the peers as a body and also for all members of their families. Only countries with a

hereditary ruler possess a peerage. English peers and representative peers from Scotland and Ireland sit in the House of Lords.

There are five ranks in the British peerage, duke, marquess, earl, viscount and baron. The law lords, although they sit in the House of Lords, are not peers. The position of the bishops is more ambiguous. It is held that they are peers, because they sit in the House of Lords by right of succession. Peers have the right to be tried, when necessary, by their peers. A peerage is created by letters patent, and this states how the title shall descend. It may, therefore, be limited to sons, or may pass to a daughter or a nephew. A woman can be a peeress, but cannot sit in the House of Lords.

Pegasus In Greek mythology the winged steed of Bellerophon, who slew the Chimæra with his aid. He came into being from the blood of the gorgon, Medusa, when Perseus cut off her head. The Pegasus Club is an association of members of the Bar who are interested in hunting and racing. It holds an annual point-to-point meeting. The name is taken from the crest of the Inner Temple, which is a winged horse.

Pekinese Dog Breed of lap-dog. Of Chinese origin, it differs from English toy spaniels in having a flat skull and tall curled over the loins. Preferably weighing 5 to 6 lb., it is heavy in front, with short broad muzzle, falling away lion-like behind. Long-haired, with thick undercoat, it is light-red or yellow, mottled with white.

Peking Former capital of China, now known as Peiping, a very ancient and populous city lying about 100 m. from the Gulf of Chih-li. Kublai Khan established it as capital of the Chinese Empire in 1264, and it consists of the Chinese city and the Tartar city, the latter being surrounded by walls built in 1421, while those of the Chinese city were built in 1544. Inside the Tartar city is the imperial city, while inside that again is the Forbidden city. Here are many ancient and wonderful buildings, including the Temple of Confucius and the Temple of Heaven. The population is about 1,300,000.

Pelargonium Genus of herbs of the geranium order. Often half-shrubby, they are distinguished from geraniums by having stalked umbels of flowers with irregular corollas and upper sepals spurred. See GERANIUM.

Pelée Mont. Volcano, 4400 ft. in height, on the island of Martinique in the French West Indies. The lower slopes of the mountain consisted of dense wooded country, but in 1902 two eruptions occurred and totally destroyed the neighbouring town of St. Pierre and adjacent villages.

Pelham Henry. British statesman. Born 1696, the younger brother of Thomas Holles Pelham, afterwards Duke of Newcastle, he was educated at Westminster and Oxford, entered Parliament in 1717 as member for Seaford, and held various offices, becoming Prime Minister in 1743, an office which he held for 11 years. He died March 6, 1754.

Pelias Character in Greek mythology. Having usurped the throne of Jason's father, he despatched Jason to find the Golden Fleece, hoping that he would not return.

Pelican Genus of waterfowl (*Pelecanus*), allied to cormorants, widely distributed in tropical and sub-tropical regions.

PELOPONNESE

Their long furrowed beaks have extensible pouches attached to the lower mandible for collecting fish-food. They have rough, harsh plumage and short, rounded tails. The common pelican (*P. onocrotalus*) 5 ft. long, inhabits S.E. Europe, S.W. Asia and N.E. Africa.

Peloponnesian War Southern portion of ancient Greece, now known as Morea. It was connected with Greece proper by the Isthmus of Corinth. The word means the "Island of Pelops." Various races inhabited it, beginning with the Pelasgians, and followed by the Achaeans, Ionians and others. Later it was under the supremacy of Sparta until the Thebans conquered the Spartans at the Battle of Leuctra in 371 B.C.

Peloponnesian War War between Sparta, from 431-404 B.C. In the first period, which was concluded by the Peace of Nicias (421 B.C.), both sides had their successes. In the second, Sicily was the centre of hostilities; in the third, Sparta had the advantage. Athens was captured by Lysander in 405, the city's walls were destroyed and her power broken, leaving Sparta temporarily supreme.

Pelops In Greek mythology, grandson of Zeus and son of Tantalus, King of Phrygia. He married Hippodamia, daughter of Oenomaus, King of Elis, and succeeded him as king. Legends concerning him deal with his being killed by his father, cut to pieces and boiled as a repast for the gods. Hermes eventually put the pieces together again, and restored him to life.

Pelorus Jack Name given to the Pelorus Sound, which for many years accompanied vessels for a given distance between Wellington and Nelson, New Zealand. It was protected by a special resolution of the legislative council.

Pelvis Name given to the bony framework or hip girdle forming a basin-like cavity protecting certain abdominal viscera and giving attachment to the lower limbs. It consists of two innominate bones, each composed of three elements, ilium, ischium and pubis, which are separate bones in early life but soon become fused into one bone. The pelvic bones are united behind to the sacrum of the backbone and in front to one another by the pubic symphysis.

Pembrey See BURRY PORT.

Pembroke Municipal borough and county town of Pembrokeshire. A walled town with a mediaeval castle, and the nearest harbour to Ireland, it was at one time an important fortified post, and was taken by Cromwell in the Civil War. The modern town grew up around the naval dockyard, which, however, was closed in 1916. Pop. (1931) 12,008.

Pembroke Manufacturing town of Ontario, Canada, situated on the Alouette Lake. It has varied industries, including mills, brickyards, lumbering and tanning. Pop. 7875.

Pembroke Earl of. British title held in turn by the families of Clare, de Valence and Herbert, as well as by certain members of the royal house at different periods. It was created in 1138 and bestowed upon Gilbert de Clare, who was followed by his son Richard (Strongbow). He was succeeded by William Marshall, his son-in-law, but in 1245 the title became extinct. William de

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PENDLEBURY

Valence then secured it by marriage, and it was held by his family until 1324. In 1551 Sir William Herbert was made Earl of Pembroke, and the present Earl, Reginald Herbert, is his descendant. The family seat is Wilton House, near Salisbury.

Pembroke Dock Dockyard on Milford Haven in Pembrokeshire, Wales, formerly known as Paterchurch. It was inaugurated as a government dockyard in 1814, being transferred from Milford, and forms part of the borough of Pembroke, two miles away. The dock was closed in 1925.

Pembrokeshire County of Wales, the most westerly in the principality. It has an area of 614 sq. m. Pembroke is the county town, and its chief ports are Fishguard and Newport. Haverfordwest and Tenby are municipal boroughs. The county contains part of the South Wales coalfield. Pop. (1931) 87,179.

Pembrokeshire is very rich in early remains, both megalithic and Romano-British. Its contacts with Ireland and Brittany made it a centre of Celtic Christianity, and many Celtic crosses remain. Its importance in mediaeval times is attested by the many castles. Long a county palatine, it lost this distinction with the passing of the Act of Union in 1536.

Pemmican Dried buffalo meat or lean venison pounded and mixed into flat cakes with boiling fat. Originally a North American Indian food, it is now manufactured from beef for use in Arctic explorations, being of value owing to its capacity for remaining good for an indefinite period if kept dry.

Penal Servitude Form of punishment which superseded that of transportation in English law by the Penal Servitude Act of 1853. Such imprisonment may be for a maximum of three years or for life, but some degree of remission may be earned by the good conduct of the prisoner, who is then granted a ticket of leave. Prisoners undergoing penal servitude wear the distinctive broad arrow dress and have to do some form of useful work.

Penance Variant form of the word "penitence," denoting specifically the outward acts manifesting repentance, either voluntary or performed under ecclesiastical discipline. Protestants hold that Divine forgiveness follows true sorrow for sin irrespective of imposed acts. The Roman Catholic Church, ranking penance as one of the seven sacraments, regards it as comprehending contrition, confession to an approved priest, satisfaction by accomplishing penitential works, and absolution.

Penang British Crown Colony, one of the Straits Settlements, consisting of Penang Island and Province Wellesley on the main land. George Town, an important port, is on Penang Island, which is 108 sq. m. in area, while Province Wellesley is 280. It is traversed by a railway running from Siam to Singapore. Pop. 306,000.

Penarth Seaport of Glamorganshire. An urban district and watering place, it stands 4 m. from Cardiff, on the G.W. Rly. It owes its prosperity to its docks. Pop. 17,097.

Pendlebury Name given to a district of Lancashire, lying 3½ m. N.W. of Manchester, and served by the L.M.S. Rly. Pop. 10,130.

Pendleside Series Geological formation seen typically at Pendle Hill, Lancs., between Stoke-on-Trent and Settle. It consists of shales and black limestones, 1000-1500 ft. thick, and lies between the upper Carboniferous Limestones and the Millstone Grits.

Pendulum Term applied to a weight or rigid body so suspended as to swing freely on a horizontal axis, the oscillations being due to the influence of gravity. The pendulum has many applications; Galileo applied it to measure the human pulse. In certain types of stationary engines it forms part of the counter-balance mechanism. In clocks it is a device for regulating the working of the parts, and Foucault used it to demonstrate the rotation of the earth.

Penelope In Greek legend, the wife of Ulysses or Odysseus. During the protracted absence of her husband she was besieged by suitors, but she told them that before she could accept any of them she must finish the robe she was making for her father-in-law. She worked at this all day and at night until all she had done.

Penge Urban district of Kent, and a suburb of London, lying 6 m. to the south by the S. Rly. Part of the Crystal Palace park is in the district. Pop. 26,430.

Penguin Family of flightless sea-birds inhabiting S. temperate and antarctic regions. The backward position of the short legs, the webbed feet, stiff tails and erect station on land give them an ungainly appearance; the wings are transformed into paddles covered with scaly feathers. From Antarctica they extend north to the Cape, Australia, New Zealand, Falklands and other islands, forming in places immense breeding "rookeries." The largest are the king and emperor penguins, *Apodystes*; rock-hoppers, *Eudyptes*, are crested. See JACKABAS.

Penicuik Police burgh of Midlothian, Scotland. It lies 10 m. from Edinburgh, by the L.N.E. Rly. Pop. (1931) 2673.

Peninsula Term used in geography for a piece of land nearly surrounded by water. For example, Spain and Portugal form the Iberian Peninsula, which is bounded by the Bay of Biscay on the north, the Atlantic on the west, the Mediterranean on the south and south-east, but is joined to France on the north-east.

Peninsular War (1808-1814) Fought against France in the Iberian Peninsula by Great Britain, Spain and Portugal. The immediate cause was the revolt of the Spanish people against Napoleon's brother, Joseph, whom he had made King of Spain. The Allied forces were under the command of Sir Arthur Wellesley, afterwards Duke of Wellington, and outstanding victories were won at Vimiero, Albuera (1811), and Salamanca (1812). There were further victories at Vittoria and Orthez. Napoleon's abdication in 1814 concluded the war.

Penistone Market town of Yorkshire (W.R.), 12 m. from Sheffield. Its industries include brewing, steel works and saw-mills, and the neighbourhood is rich in coal and stone. It is served by the L.N.E. and L.M.S. Rlys. Pop. 3791.

Penkridge Town of Staffordshire. An agricultural centre, it is 10 m. N. of Wolverhampton and 13½ m. from London by the L.M.S. Rly. Pop. (1931) 2570.

Penmaenmawr Watering place and urban district of Caernarvonshire. It lies 4 m. from Conway amid beautiful scenery and is served by the L.M.S. Rly. Pop. 4000.

Penn Sir William. British admiral. Born in 1621, he fought on the Parliamentary side in the Civil War, but in 1660 accompanied Montagu to bring Charles II. back, and was knighted aboard the *Naseby*. He died on Sept. 16, 1670.

His son, William, was a prominent Quaker, the founder of Pennsylvania. Born Oct. 14, 1644, he was expelled from England in 1661 because of his faith, travelled abroad, and later suffered imprisonment on the same account. He founded Pennsylvania in 1671, where he spent some years between 1684 and 1701. He died at Ruscombe on May 30, 1718.

Pennant Long, narrow flag, usually pointed at the end. It is carried by lancer regiments on their lances, and is flown in the Navy at the mast head of a vessel in commission. The paying-off pennant, or pendant, is a very long streamer with a bladder at the end, and is flown by a ship when she returns to port to pay off. Originally the pennant was the knight bachelor's flag which he bore at the end of his lance.

Pennine Chain Mountainous region forming a high plateau cut by deep river valleys, extending from the Scottish border in the north to the Vale of Trent in the south and including the Peak tableland of Derbyshire. The chief heights are Cross Fell, 2892 ft., Mickle Fell, 2591 ft., Whornside, 2414 ft., Ingleborough, 2737, ft., Penyghent, 2270 ft., and Kinder-scout in the Peak district, 2088 ft.

Pennsylvania State of the U.S.A. It lies between New York State on the N., New Jersey on the E., Maryland and West Virginia on the S. and Ohio on the W., and touches Lake Erie in the N.W. Its area of 45,126 sq. m. is traversed by the Appalachian Mountains. The chief rivers are the Delaware, Susquehanna and Allegheny. Harrisburg is the capital; other large cities are Philadelphia and Pittsburg.

Pennsylvania is ruled by a governor elected for four years, a senate of 50 members, and a house of 207 representatives. The state is enormously rich in minerals, particularly coal and iron, limestone and glass sand. Its most important manufactures are iron and steel, silk, machinery, electrical goods, books, etc., and knitted goods. Pop. (1930) 9,631,350.

Pennsylvania was first settled by Swedes and Dutch, but owes its true foundation and first constitution to William Penn (q.v.). The state played an important part in the War of Independence, and it was at Philadelphia that the Declaration of Independence was adopted. The state entered the federation in 1787, but the present constitution dates from 1873.

Penny Bronze coin of the value of one-twelfth of a shilling, introduced in 1860 to supersede the copper coins in use since 1672. Previous to this latter date silver pennies were coined but they gradually decreased in weight and the only silver coins of this value now made are issued as Maundy money. The early silver pennies were marked with a cross-like indentation to allow of separation in halfpennies and farthings. The standard weight of a bronze penny is 145.83333 grains Troy.

Pennyroyal Perennial labiate herb, (*Mentha pulegium*), native of Europe and W. Asia. Abundant in England and parts of Ireland, sometimes grown in Scottish gardens, its much-branched prostrate leafy stem, up to 12 ins. long, with small ovate-oblong toothed leaves, bears dense whorls of small, hairy, tubular, lilac flowers. It was formerly much used medicinally.

Pennywort (*Cotyledon umbilicus*). Species of the order, *Crasulaceae*, known also as navelwort. A flowering wild plant that flourishes on dry walls and in rocky crevices. It has succulent leaves depressed in the centre and greenish yellow flowers borne on erect spikes.

Penology Branch of criminology, dealing with the study of punishment. Punishment for offences against the community goes back as far as history, and was largely based on the idea of retribution, if not of vengeance. Modern development, of quite recent growth, endeavours to select punishment which permits reclamation while protecting society.

Penrhyn Slate quarrying district of Caernarvonshire, situated near the entrance of the Menai Strait. This facilitates the shipping of the slate from Port Penrhyn.

The title of **Baron Penrhyn** was created in 1763 and is now borne by the family of Douglas-Pennant, the original creation, which was held by Richard Penrhyn, having become extinct with his death in 1808. The family seat is Penrhyn Castle.

Penrith Ancient market town of Cumberland, near Carlisle, on the L.N.E. Rly. It has an agricultural trade as well as brewing and tanning industries. Pop. 8342.

Penryn Market town of Cornwall, situated on the Penryn River and served by the G.W. Rly. A prosperous seaport of the Middle Ages, its chief industries to-day are tanning, brewing and granite-pollishing and exporting. Paper and chemicals are also manufactured. Pop. 3151.

Penshurst Village of Kent, chiefly distinguished for Penshurst Place and its park of 350 acres. Here, Sir Philip Sidney was born and the mansion is still owned by his descendant, Lord de L'Isle and Dudley. Pop. 1570.

Pension Retiring allowance, or a grant made to an aged or needy person. A pension may be non-contributory, as those granted to members of the fighting services and to civil servants after a certain term of service; or contributory, as when it is given as a superannuation provision by a trade union. Many large employers of labour have a pension fund to which they contribute a portion, the remainder being provided by the workers' contributions.

The State schemes include the old age pension (g.v.) introduced in 1908, and the pensions granted under National Health Insurance Acts (1925-9). The latter scheme provides a pension of 10s. per week each for the insured worker and his wife at the age of 65. The workers make weekly payments in contribution by means of stamps affixed to a card. The Health Insurance scheme also provides a pension of 10s. for the widow of the worker, receiving 5s. for the first and 3s. for other children. Orphaned children of an insured worker receive 7s. 6d. each. The same

acts provide for a blind person receiving a pension of 10s. per week at the age of 50.

What are termed civil list pensions are granted by the crown to necessitous persons who have attained distinction in art, literature or science, or to their dependents.

Pensions Ministry of. British Government department, formed in 1916 for the administration of pensions to members of the war services and their dependents. The headquarters are at 18 Great Smith Street, Westminster.

Pensnett Coal-mining town of Staffordshire. Other industries are the manufacture of iron and glass.

Pentateuch Greek name meaning "five-volume book," used since the 2nd century A.D. for the first five Old Testament books, Genesis, Exodus, Leviticus, Numbers, Deuteronomy. They constituted the Hebrew *Torah* or Book of the Law, and were inscribed on a single roll. The Samaritan Pentateuch, in the Samaritan script, derived from the roll taken to Samaria in 722 B.C., exists in various ancient copies, which furnish valuable textual confirmation of this portion of the LXX. Greek version of the Hebrew Bible. See HEXATEUCH.

Pentecost Greek word meaning "fiftieth," used in the Greek New Testament to denote the Jewish harvest festival or feast of weeks, held on the 50th day after Passover, and preceding the Jewish New Year by 113 days. It acquired a supreme significance to the Christian Church because on that day, called in English, Whitsunday, the Holy Spirit descended on the apostles (Acts II.). The Roman Catholic Church preserves the name, all the following Sundays until Advent being called "after Pentecost."

Pentland Firth Strait off Scotland between Caithness and the Orkneys connecting the North Sea with the Atlantic Ocean. It is navigable but dangerous, owing to tidal currents and whirlpools. At the Eastern entrance are the Pentland Skerries with two lighthouses. The channel is 14 m. long.

Pentland Hills Range of hills in Scotland. They are in the counties of Edinburgh, Peebles and Lanark and extend for some 16 m. The highest point is Carnethy (1980 ft.).

Pentonville District of London. To the north of the city, it is in the borough of Islington. Therein is Pentonville Prison. The district owes its name to the fact that in the 18th century the land belonged to Henry Ponton, M.P.

Pentstemon Large genus of perennial half-hardy herbs of the figwort order, natives of N. temperate and subtropical America, especially California. Showy garden varieties have been developed.

Penumbra Term in optics for the partial shadow surrounding the umbra or total shadow formed on a screen when an opaque body is placed so as to intercept the light from a luminous object. An example is the region of partial shadow seen round the darker disc in an eclipse.

Penzance Seaport and watering place of Cornwall, situated at the head of Mount's Bay, 8 m. from Land's End. It has a good harbour and docks, is a fishing centre, especially for pilchards, and exports tin, copper and china clay. Pop. 12,100.

Pepper Perennial climbing shrub (*Piper nigrum*) typical of the pepper order, indigenous to the Malabar coast of India. Widely cultivated in Malaya, especially Penang, as well as the Philippines, W. Indies and other tropical lands, it produces a black or white spice derived from the dried fruits, respectively ground with and without the husks. See CAYENNE PEPPER.

Peppermint European perennial labiate herb (*Mentha piperita*). Growing wild in Britain, with creeping rootstock, opposite coarsely-toothed leaves and loosely-spiked flowers, it is cultivated in black and white varieties in England, continental Europe and the U.S.A. for its pungent essential oil, which contains menthol. This comes still more freely from allied Japanese and Chinese forms.

Pepper Tree Tropical American tree of the cashew order (*Schinus molle*). It is grown in warm countries for shade and ornament, the aromatic berries furnishing a vinous beverage and pepper-substitute in S. Europe, and an astringent for the gums in Peru, called Peruvian mastic. Itiviera visitors sometimes misname "pepper tree" the Indian bead tree (*Melia azedarach*).

Pepsin Proteolytic ferment or enzyme occurring in the gastric juice secreted by the gastric glands in the wall of the stomach. In the presence of hydrochloric acid pepsin converts food proteins into soluble peptones which are assimilated readily by the stomach. For medical purposes pepsin is used in a dried form or in various solutions.

Pepys Samuel. English civil servant and diarist. He was the fifth son of a tailor, and was born on Feb. 23, 1633, in London, where most of his life was spent. Educated at St. Paul's School and Magdalene College and Trinity Hall, Cambridge, he secured a post in the Navy Office, while he held several important public appointments in the course of his life and sat in Parliament for Castle Rising. He died on May 26, 1703. His diary, written in cipher, runs from Jan., 1659, to May, 1689, and is a masterly picture of the times in which he lived, as well as being a unique revelation of character. It was first deciphered in 1819-22 by John Smith, and published in 1825. Since then innumerable editions have been issued.

Perak One of the Federated Malay States with an area of 10,000 sq. m. It has tin mines and rubber plantations, while rice and fruit are also grown here. It is ruled by its own sultan, but is under British protection. Pop. 494,050.

Perch Genus of spiny-finned freshwater fishes (*Perca*). The common perch (*P. fluviatilis*), seldom exceeding 3 lbs., inhabits rivers and lakes in Britain and elsewhere. It is bronze-green with golden reflections, having five or seven dark cross-bands and red fins.

Percy English family which has held various peerages since the day of the first William de Percy, one of the Conqueror's barons. The 12th Baron Percy became Earl of Northumberland in 1377, and the Dukes of Northumberland, after many lapses and recreations of the title, are still Percies, though Sir Hugh Smithson, created duke in 1786, assumed the name by deed poll. The famous Hotspur, who was killed at Shrewsbury in 1403, was Sir Henry Percy, son of the first Earl of Northumberland.

Père-Lachaise Parisian cemetery, named after Father François de La Chaise (q.v.), superior of the Jesuits in Paris, to whom the land originally belonged. It covers about 212 acres. Many famous people are buried here, including Abélard and Héloïse and other more recent celebrities, literary, artistic and military. A Mohammedan cemetery with its mosque lies alongside. It became a municipal cemetery in 1804.

Perennial Plant that lives more than two years. All trees and shrubs being perennial, the term denotes more particularly herbs which are not annual or biennial. They may have perennial tap-roots, hardy bulbs or fibrous roots arising anew annually or periodically. Tropical perennials often become annuals when transplanted to colder climates.

Perfume Substance which has a pleasant sweet-smelling odour, as in the case of certain gums, essential oils of plants, some animal products and synthetic compounds. For incense odoriferous gums such as frankincense or oilbalm, and gum benzoin are used along with sandalwood. Musk, civet and ambergris are animal perfumes, and the essential oils are represented by otto of roses, the oils of lavender, rosemary, patchouli, etc. Many synthetic perfumes are used as substitutes for the natural ones.

Pergola Term derived from the Italian word for an arbour and applied to a long series of light arches erected over a garden path, and constructed of trellis, iron with brick or stone foundations, or of undressed oak and fir wood. A pergola is used for climbing plants such as roses, jasmine, etc.

Peri Beings of a nature partaking of demon and fairy, existing in Persian myth. Although not malevolent they are not deemed fit for the Persian Paradise.

Pericarditis Inflammation of the pericardium (q.v.). It may be dry or accompanied by liquid effusions, with the formation of adhesions. Rarely independent, it is most commonly associated with acute rheumatism, but also attends Bright's disease, scarlatina and other fevers. There are pains over the heart, rapid and feeble pulso action and difficult breathing.

Pericardium Conical membranous sac containing the heart and the origins of the great vessels. A dense unyielding fibrous layer is lined with a serous layer whose inner surface secretes a thin lubricating fluid which facilitates the heart's natural movements. The apex lies behind the breastbone, the base being in relation to the diaphragm.

Pericles Athenian statesman, son of about 499 B.C., he began to take part in public affairs in 469 B.C., and distinguished himself as a general as well as a statesman, notably in his recovery of the rebellious island of Euboea in 445 B.C. He also subdued Samos in 440 B.C. Under his administration Athens was developed and embellished, and he was the patron of the sculptor Phidias. His policy during the Peloponnesian Wars was one of concentration in Athens, leaving the rest of Attica to its fate. In 430 B.C. he lost both his sons during the terrible outbreak of plague. He died in 429 B.C.

Peridot Name given to the transparent olive-green and bottle-green

varieties of the mineral olivine, a silicate of iron and magnesium, used as gemstones.

Perigee Term in astronomy for the point in the lunar orbit where the moon is nearest to the earth, the opposite position being termed apogee (q.v.).

Perihelion Astronomical term for the position in the orbit of the earth, a planet, or comet, at which that body is at its nearest distance to the sun.

Perim British island in the Straits of Bab-el-Mandeb at the southern end of the Red Sea. It is a coaling and cable station, but is otherwise of small importance.

Periodic Law Chemical classification of the elements. The task first engaged the attention of chemists late in the 18th century. In the 19th, an arrangement in order of atomic weights was suggested, which Mendeleev elaborated, observing that certain properties became periodic, notably the valency. It is now incorporated in the modern concept of atomic structure.

Periscope Optical instrument used in trench warfare and in submarines for enabling an observer to see surrounding objects from a lower level. In its simple forms it consists of two mirrors set at an angle on a frame, or of reflecting prisms and mirrors fixed in a vertical tube, the upper mirrors or prisms reflecting an image to the lower set, and thence to the eye. The submarine periscope has in addition lenses and eyepieces to magnify.

Peritoneum Membrane lining the wall of the abdominal and pelvic cavities and investing their contained viscera. The two layers, parietal and visceral, comprise a thin elastic serous sac, entirely closed except in the female, whose Fallopian tubes communicate with it. Numerous folds hold the parts in position; the frontal apron called the great omentum is liable to increased deposition of fat in the corpulent. The mesenteries connect the intestines with the backbone, and ligaments support some organs.

Peritonitis Inflammation of the peritoneum (q.v.). Often called loosely inflammation of the bowels, by confusion with enteritis (q.v.). In acute forms this disease is usually indicated by severe abdominal pains, and may be caused by micro-organisms entering through wounds from outside, or internal perforations due to strangulated hernia, obstruction of the bowels, appendicitis, burst abscesses and the like. The chronic form is either tubercular in origin and secondary to consumption, or local and non-tubercular. Should perforated bowel be suspected, operation is essential.

Periwinkle Cosmopolitan genus of marine snails (*Littorina*). Shore-dwellers, in some tropical regions they ascend mangrove trees and are found far inland. Of several British species the commonest, *L. littorea*, with stout stony shell and strong horny operculum, is a favourite food, especially in inland towns, being also used as cod-bait off Newfoundland.

Periwinkle Genus of perennial evergreen herbs or trailing undershrubs of the dogbane order (*Vinca*), natives of temperate Europe, Asia and N. Africa. Long naturalised in Britain, the greater, *V. major*, and lesser *V. minor*, with bluish-purple, salver-shaped corollas, are cultivated in gardens, there being double-flowered

white varieties and others with gold or silver variegated foliage.

Perjury Making a false statement on oath, a misdemeanour punishable by fine, imprisonment, or penal servitude. The oath must be a lawful one, and the statement must be material to the issue. To suborn perjury, i.e., promise another to swear falsely, is a misdemeanour with like penalties.

Perkin Sir William Henry, English chemist and founder of the aniline dye industry. He was born in London, March 12, 1838, and educated at the City of London School, choosing chemistry as his career. The famous Perkin's purple dye was discovered while he was trying to prepare quinine synthetically, and other commercially important discoveries followed. He was knighted in 1873 and died July 14, 1907.

Permanganates Name applied to the salts derived from permanganic acid, the most important being permanganate of potash which, in aqueous solution, is a deep purple liquid readily decomposed with evolution of oxygen when in contact with organic matter. Hence its use as a disinfectant and chemical oxidising agent. Condy's fluid is a solution of crude sodium permanganate.

Permian Series of rocks formerly known as New Red Sandstone; but named by Murchison after Perm in Russia where the beds are well developed. The Permian System consists of beds of red sandstone, marls, breccias and magnesian limestone, overlying the Carboniferous rocks. In north-east England the magnesian limestone, which supplied good building stone and lime, is associated with marl slates, gypsum and rock-salt. In the Midlands breccias occur, and in S. Devon red sandstone and coarse breccias.

Permutation Term in mathematics for the linear arrangement of numbers or letters in every possible order, thus *a* and *b* may be arranged as *ab* and *ba*, giving two permutations, or *a, b, c* as *abc, acb, bac, bca, cab, cba*, giving six permutations. Algebraic formulae are used for calculating permutations of any given quantity.

Pernambuco Province of Brazil. On the eastern coast, it covers 38,312 sq. m., pop. 2,600,000, and produces sugar, cotton, etc. The capital, which has the same name, is also known as Recife. It is an important port with exports of cotton, sugar, etc. The harbour is a good one, the town being built on a reef, an island and the mainland. Pop. 327, 843.

Perpendicular Name given to a period of Gothic architecture in England from about 1350 to 1547. The Perpendicular style was characterised by the persistent expression of verticality throughout a building even in the window tracery and the extensive use of panning, having numerous vertical lines, over walls, buttresses, parapets, etc. Other distinctive features were the fan tracery vaulting, flatter arches, flying buttresses and open timber roofs.

Perpetual Motion Idea long prevalent that some machine could be constructed which, when once in motion, would continue to do useful work without any outside supply of energy. The idea is impracticable, as inertia and friction can only be overcome by the expenditure of energy which cannot be "created."

Persephone (or *Proserpine*). In Greek legend, daughter of Zeus and the earth-goddess Demeter. Carried off while flower-gathering by Pluto, ruler of the underworld, she became its queen. In her absence Demeter forbade the earth to yield increase, and Zeus had to send Hermes to fetch her back. Her rape and return symbolise the sowing and growth of corn.

Perseus In Greek myth, the hero son of Danaë by Zeus. He was sent by Polydectes, King of Seriphos to win the head of Medusa, the Gorgon. He succeeded, aided by Athena, and on his return journey saved Andromeda from the sea monster and married her. Later he became King of Argos and is the legendary founder of Mycenæ.

In astronomy **Perseus** is a constellation traversed by the Milky Way, extending from Cassiopeia to Taurus.

Pershing John Joseph. American soldier. Born, Sept. 13, 1856. He served as a lieutenant against the Indians, and in 1898 fought in the Spanish-American War. In 1902 he commanded an expedition against the Moros of Mindanao, while between these spells of active service he held various administrative appointments. When the U.S.A. declared war on Germany in 1917 he became commander-in-chief and was on the Western front with the American Expeditionary Force until the Armistice. He was chief of staff from 1921-24.

Pershore Town of Worcestershire. It stands on the Avon, 113 m. from London and 8 from Worcester on the G.W. Ry. The town is the centre of a district wherein fruit and vegetables are grown and jam making is an industry. Pop. 3400.

Persia Country of central Asia, lying between Turkey and the Persian Gulf on the West and South Turkestan and Afghanistan on the East, Transcaucasia and the Caspian Sea on the North. It has an area of 628,000 sq. m., consisting of tableland with a mean altitude of 3000-5000 ft. There is only one navigable river, the Karun. The climate is mostly dry and very hot. Dates are cultivated and cereals grown, while opium and tobacco form profitable crops. Oil, of which Persia has great resources, is the principal export, followed by carpets, for which the country is famous; opium, fruit and raw cotton are also exported. Teheran is the modern capital, Isfahan the ancient one. Abadan is the chief oil-producing centre, and Bushire the chief port. The population is 9,500,000, of which a third are nomadic.

Persia is a constitutional monarchy under a monarch known as the Shah. It has a long and interesting history, beginning with the Sumerians, continuing through the Medes to Alexander the Great and the Arab and Turkish conquests, and the present day. Great archaeological finds have been made on the sites of Persepolis and Susa. The religion to-day is divided between Mohammedans, Sunnites, Jews and Armenian and Nestorian Christians. There is a rich and ancient literature, and its art is among the most remarkable of the pre-Christian world.

Persian Gulf Arm of the Indian Ocean, lying between Persia and Arabia. It is 550 m. long and 75,000 sq. m. in area. It contains the Bahrain Islands, and its principal harbours are Bushire and Bandar Abbas. The Shatt-el-Arab flows into it.

Persimmon (or *Dats-plum*). Deciduous tree of the ebony family (*Diospyros virginiana*). It produces a sweet, orange-yellow, 1 in. plum. Its dark close-grained timber serves for weaving-shuttles, golf club-heads, etc. The larger Japanese persimmon (*D. kaki*), of which 800 varieties are cultivated in E. Asia, U.S.A., and elsewhere, is of apple size.

Personation English legal term meaning a pretence of being another person—what in ordinary speech would be called "impersonation." The False Personation Act of 1874 makes personation a felony if it be designed to extract money or property. Among the most famous of personation cases is the Tichborne case of 1871.

Perspective Term used in art for the method of delineation of objects upon a plane surface as they appear to the eye. Perspective is divided into linear and aerial, the former being concerned with the form and arrangement of objects as they appear to be modified by distance, and the latter with the impression of atmosphere and space in regard to colour and distinctness. Aerial perspective was first clearly interpreted by Claude Lorraine in the 17th century.

Perspiration Term applied to a process by which water is excreted from the skin by means of the sweat glands, simple tubular structures occurring in large numbers all over the body. The lower portion of a sweat gland is coiled into a knot and lies in the deeper layer of the true skin, while the upper part forms a duct leading to the surface. Perspiration aids in regulating the temperature of the body and is increased by dry heat and exercise—also by certain emotions.

PERSPIRING FEET.—This condition is due to a disturbance of the nerves supplying the sweat glands, and medical advice should be sought as there is usually some fault in diet or constitution.

Treatment.—Plunge the feet alternately into quite hot and very cold water night and morning. Repeat this six or seven times, the last immersion being in cold water, after which the feet should be dried thoroughly with a rough towel and dusted with a powder consisting of equal parts of powdered starch, borio acid, and salicylic acid. Use this powder to dust the insides of the socks, which should be of silk or wool and never of cotton, and make sure that the shoes do not cramp the feet.

Perth County town of Perthshire, situated on the Tay, and known as the "Fair City," owing to its beautiful position. It is served by the L.M.S. Ry., and has large industries of which dyeing is the chief. Others are glass and linen making, while brewing, ironfounding and the manufacture of floor cloths are important. Pop. 34,807.

Perth has interesting historical associations. It was the capital of Scotland until the 15th century. It has been the scene of many sieges and battles. Here is a magnificent bridge across the Tay.

The Earl of Perth is a title borne by the family of Drummond since 1605 and has a strong Jacobite tradition. A dukedom was bestowed on the earl by James II., but this, which had no real validity, was abandoned in 1853, by George Drummond, who remained Earl of Perth and Melfort.

Perth Capital of Western Australia, at the mouth of the Swan River and

founded in 1829. In 1856 it was made a municipality, but its prosperity and growth date from the discovery of gold in the neighbourhood in 1891. Fremantle (q.v.) is the port. Pop. 155,129.

Perthshire Midland county of Scotland lying to the North of Stirling, with an area of 2528 sq. m. Of the Grampians many heights rise to 3000 ft. and more. It is watered by the Tay, and has many lochs, including Tay, Katrine and Achray. Other famous spots are the Carse of Gowrie and the pass of Killecrankie, where Viscount Dundee at the head of the Jacobite forces defeated the royal force under General MacKay in 1689. The county town is Perth (q.v.). Blairgowrie, Dunblane, Auchterarder, Pitlochry and Aberfeldy are other towns.

The county is mainly agricultural and is served by the L.M.S. and L.N.E. Ryys. Pop. (1931) 120,772.

Peru Republic of South America, lying between Ecuador and Colombia on the North, the South Pacific on the West, Brazil on the East, and Bolivia and Chile on the south. It has an area of 722,461 sq. m., and a population of 5,500,000, half of which consists of aboriginals. Lima is the capital and Callao is the principal port. The country is mountainous, and is rich in minerals, of which the most important is copper, but petroleum and silver are also found. There is coal, but it has not yet been utilised. Vegetation is luxuriant and profitable; and includes sugar, coffee and cotton.

Peru is a centre of ancient civilisations. The Inca civilisation which Pizarro found when he conquered Peru in the mid-sixteenth century was virtually destroyed by the advancing Spaniards.

The Government is a republic under a president who holds office for four years, with a cabinet, senate and representative house.

Perugia City of Italy. The capital of the province of Perugia, it is of ancient Etruscan origin and played a considerable part in history. In mediaeval times it was long independent, supporting the Guelphs, but fell before the Farnese family in 1534. Occupied by the French in 1797, in 1849 it was seized by Austria, finally being united to Piedmont in 1860.

Among its many notable buildings are a Gothic cathedral, the Palazzo Comunale (begun 1297), containing an important art collection, and other famous buildings and churches, decorated by Perugino, Raphael and others. Its famous university dates from 1307.

The modern city manufactures liqueurs and silk, and is a centre of the wine and oil trade. Pop. 70,200.

Perugino Italian painter whose real name was Pietro Vannucci. He was born at Città della Pieve about 1446, and worked in Florence, where he had received his training in the school of Verrocchio, and in Perugia. In 1480 Pope Sixtus IV. commissioned him to work on the decoration of the Sistine Chapel. Later, when he was once more in Florence, Raphael was among his pupils. He painted mostly religious subjects. He died 1524.

Peruvian Bark Name formerly applied to the bark of various species of *cinchona*, natives of the valley forests of Peru, Bolivia and Ecuador, from which quinine and allied alkaloids are extracted. Widely grown in Java, Sikkim,

Ceylon, Jamaica, and elsewhere, yellow or calisaya bark yields the most quinine, red bark the most cinchonidine.

Peseta Monetary unit of Spain. A silver coin whose standard value is 9½d. There is a gold piece of 25 pesetas.

Peshawar District and town of the North-West Frontier Province, India, belonging to Great Britain. The district is watered by the Kabul River. It has an area of 2611 sq. m. and a population of 865,000. The town is important because of its strategic position at the entrance of the Khyber Pass. It is a great trade centre and has a population of 98,000. It passed into British hands in 1848. In 1930 there was fighting between the Afridi and British.

Peso Monetary unit. Derived from the old Spanish dollar, it is now a monetary unit comprising 100 centavos represented by actual silver coinages, and theoretically gold ones, in Mexico, Argentina, Chile, Colombia, Guatemala, Panama, Cuba, Paraguay, and Uruguay. In some Central and S. American countries national synonyms, e.g., quetzal in Guatemala, occur.

Pestalozzi Johann Heinrich, Swiss reformer and educationist. He was born at Zürich, Jan. 12, 1746, and interested himself in education. By 1780 he had established a school for waifs and strays at Neuhof, and from 1798-99 he organised a school for orphans at Stanz. His educational system was based on the importance of observation with its consequent perception. His writings include *The Evening Hours of a Hermit*, and *How Gertrude Teaches her Children*. He died Feb. 17, 1827.

Pétain Henri Philippe, French soldier. Born April 24, 1856, he passed out of St. Cyr in 1878, and in 1902 was instructor of the musketry school at Châlons. When the Great War broke out he commanded the 4th brigade. He did notable service during the war, including the command of the defences of Verdun in 1916. In 1918 he was made commander-in-chief of the French armies under Foch as *generalissimo*, and in Nov., one week after the Armistice, he became a Marshal of France. In 1925 he supervised reinforcements sent against rebels in Morocco.

Petal Botanical name for the floral leaves forming the corolla or inner whorl of a flower. In most plants the petals are coloured and form a single whorl as in the foxglove, but sometimes there is a double whorl as in the poppy. Petals are free or united, and as their chief function is to attract insects for purposes of pollination there are many other variations in colour, form and insertion upon the floral axis.

Petard Device formerly used in warfare for destroying a gate or palisade of a fortress. A petard consisted of an iron case shaped like a half cone and containing a heavy charge of gunpowder, which was fired by means of a fuse. The petard was fastened to a plank having hooks for attaching it to the gate or palisade.

Peter One of the twelve apostles. Named Simon, son of Jonas, and originally a Galilean fisherman, he was one of Christ's earliest disciples, forming with James and John His innermost circle. His confession concerning the Messiahship of Jesus, the atonement of his second name Cephas or Peter, and the risen Lord's commission to "feed My sheep," prepared him for a dominant

place in the infant church. He was traditionally martyred under Nero in Rome, being commemorated on June 29.

Peter Epistles of. Two New Testament books. The first exhorts the scattered Christian community in Asia Minor to live worthily in a hostile world. Its traditional ascription to the apostle is generally upheld. The second, differing in style and language, presents problems which occasioned controversy even in the 3rd century. It may have been the work of a writer utilising the apostle's name, and was the last of the catholic epistles to receive canonical rank.

Peter King of Serbia. Born at Belgrade, July 11, 1844, he was a member of the great Karageorgovitch family. He was elected king after the assassination of Alexander in 1903. He fought with the Serbian army during the Great War, but when his country was reconquered and became Yugoslavia, he retired to Belgrade. He died Aug. 16, 1921.

Peter I. Tsar of Russia, known as The Great. Born May 30, 1672, he became tsar in 1682 together with his brother, Feodor. He was a keen soldier and devoted himself to the reorganisation of his army and navy, having for a time studied shipbuilding at Deptford. In 1686 he went to war with Turkey, and three years later with Sweden, when he was beaten at Narva by Charles XII. He married Catherine, the wife of a Swedish soldier, who eventually succeeded him as Catherine I. In 1703 he founded St. Petersburg. He died Jan. 28, 1725.

Peter II. grandson of Peter the Great by his only son Alexis, was born Oct. 11, 1715, and came to the throne in 1727; but, after a reign of little importance, died Jan. 29, 1730.

Peter III. was another grandson of Peter the Great by his daughter Anna. Born Feb. 23, 1738, he succeeded to the throne in 1762, but was deposed by his wife, Catherine II., and was strangled, July 18, 1762.

Peterborough City of Northamptonshire. Situated on the River Nene, it is an important railway junction, served by the L.M.S. and L.N.E. Rlys. It is the chief town of the Soke of Peterborough, a separate administrative county with a population of 51,845. The city has several industries of which the chief is the manufacture of agricultural implements and railway stock. The present cathedral stands on the site of a Saxon one and is largely Norman. Pop. 43,558.

Peterborough Manufacturing town of Ontario, Canada, 72 m. from Toronto, on the River Otonabee. Its principal industries are lumbering and flour mills. Pop. 19,250.

Peterhead Fishing port of East Aberdeenshire, situated on Peterhead Bay. Besides the herring fishery, here is a granite polishing industry and some lesser manufactures. The harbour has graving docks. Pop. 13,700.

Peterloo Massacre of. Popular name—suggested by Waterloo—given to the events which occurred at St. Peter's Fields, Manchester, in August, 1819, when a huge reform meeting, while it was being addressed by "Orator" Hunt, was dispersed by a body of Yeomanry and Hussars, with casualties amounting to 11 killed and over 500 wounded.

Petersfield Market town of Hampshire, on the S. Ry., 20 m.

N.N.E. of Portsmouth and 54 from London. Pop. 4000.

Peter the Hermit Mediaeval preacher associated with the first crusade. He was a priest at Amiens when Pope Urban II. declared a crusade at Clermont, thereafter becoming famous for his inspiring advocacy of its claims. His legendary share in originating the crusade is unhistorical. He died c. 1115, and was buried at his abbey, now ruined, near Huy, Belgium.

Petiole Botanical name for the stalk of a foliage leaf, a petiole is typically cylindrical, but usually has a slightly flattened upper surface with the basal portion often grooved to carry off water. It is present in most dicotyledons, but not usually in monocotyledons. Its function is to expose the leaf to suitable illumination.

Petition In law it is a formal application made in writing to the sovereign, to Parliament, or to a court of law. It is loosely applied to any formal written request, such as that made to the home secretary by the friends or relatives of a person condemned to death, asking for a reprieve.

The Petition of Right was drawn up by Parliament in 1628 and presented to Charles I. It embodied constitutional demands which were agreed to by the king under pressure, and became a statute called "The Bill of Rights." A subject who wishes to proceed against the crown to-day must do so by means of a "petition of right."

Petra Ancient stronghold of Edom, situated on the Wadi Musa brook in a valley between the Dead Sea and the Gulf of Akaba. Excavations have revealed some wonderful buildings, notably the Temple of El-Deir, a Greek structure hewn out of the red rock. Some of the older work shows Egyptian influence, but the finest is Graeco-Roman. Petra was used in the Great War as a base for Colonel Lawrence's attack against the 4th Turkish army.

Petrarch Italian poet, more properly, Francesco Petrarca. He was born in Arezzo, July 20, 1304, the son of an exiled Florentine notary, and was educated at Avignon and afterwards at Montpellier and Bologna. Here he became an enthusiastic classical scholar, especially of Cicero and Virgil. After he returned to Avignon, in 1327, he met Laura, who was to become his inspiration. Her identity is unknown, but she may have been Laure de Noves.

Petrarch wrote both in prose and verse, but he will be remembered principally by his lyrics and by the sonnets to the form of which he gave his name. He died July 18, 1374.

Petrel World wide sub-family of oceanic birds of powerful flight. The name denotes the habit some have of apparently walking on the water like S. Peter. The fulmar (*Fulmarus glacialis*), 19 ins. long, breeds in Shetland and the outer Hebrides; the sooty storm-petrel or Mother Carey's chicken (*Procellaria pelagica*), 6 ins. long, breeds in the Solilies and Lundy. Visitors to the Cape and Australia encounter respectively the Cape pigeon or pintado petrel and the great petrel, 32 ins., seldom N. of the equator.

Petrie Sir William Matthew Flinders. English Egyptologist. He was born at Charlton, Kent, June 3, 1853. Since 1880 Egyptian archaeology has been his special province. In the Fayum (1888-9) he unearthed important papyri, and investigated the ancient

Laichish in 1890. His subsequent researches have for the most part been carried on in the great tombs of Egypt. He has written extensively on the results of his discoveries.

Petroleum Mineral oil consisting of hydro-carbons and varying in colour from dark green, brown to black. Petroleum is derived from the decomposition of organic matter in rocks, usually porous sandstones or limestones. From the crude oil by fractional distillation are obtained petrol or motor spirit, paraffin oil and wax, fuel oils and asphalt. See OIL.

Petrology Specialised branch of geology dealing with the composition, structure and classification of rocks, their origin and sequence of formation. In this study the geological relations of the rocks, their constituent minerals and the method of aggregation of these have to be considered. Microscopic examination entails the cutting of thin rock sections and a special technique dealing with the optical characters of minerals as determinative and discriminative characters particularly in igneous rocks.

Petty Officer Rank in the British Navy, corresponding to that of non-commissioned officer in the Army. They are usually men of education and intelligence chosen from among the leading seamen and examined in elementary seamanship.

Petty Sessions In England the sitting of a court of law. It consists of two or more justices of the peace or of a stipendiary magistrate. Such a court can deal summarily only with certain minor offences, and its powers of punishment are restricted.

Petunia Genus of perennial ornamental herbs of the deadly nightshade family, chiefly S. American. Averaging 12-18 in. high, sometimes with viscid leaves, the funnel-shaped or salver-shaped solitary flowers are white, red, blue and violet.

Petworth Village of Sussex. It is 55 m. from London and 24 m. from Chichester, on the S. Rly. Petworth House, the seat of Lord Leonfield, occupies the site of a castle.

Pevensey Watling place of Sussex. It is on Pevensey Bay, 6 m. from Eastbourne, on the S. Rly. Pevensey occupies the site of Anderida, the Roman fortress, whose outer walls remain, and here William the Conqueror landed in 1066. Pevensey was then a seaport and as such it flourished until the receding sea made the harbour useless. The keep and four round towers of the castle are well-known. Pop. 750.

Pewsey Town of Wiltshire, on the Avon, 7 m. from Marlborough and 76 m. from London by the G.W. Rly. It is the centre of the rich agricultural district known as the Vale of Pewsey. Pop. 1700.

Pewter Alloy of lead and tin used for making flagons, jugs, plates, etc. The common metal consists of 80 per cent. tin and 20 per cent. lead, but the finest pewter is mostly tin with only a little lead and copper. Other metals, antimony or zinc, may be added for special purposes. The Pewterers' Company is one of the oldest City of London Livery Companies, dating from 1474, and has its hall in Lime Street, E.C.

Phaedra In Greek legend, daughter of Minos, King of Crete and Pasiphae. Wedding Theseus, King of Athens,

she fell in love with her stepson, Hippolytus. When her advances were rejected she hanged herself, leaving a letter containing a false accusation. The story is the subject of tragedies by Sophocles, Euripides and Racine.

Phaethon In Greek mythology, son of the sun-god Helios and the nymph Clymene. Attempting to drive his father's chariot his strength failed, he approached the earth so closely as to scorch it, and Zeus struck him with a thunderbolt into the River Eridanus or Po.

Phagocyte Biological term. It refers to white corpuscles (leucocytes) of the blood which can consume bacteria or other cells and envelop particles, which invade the body. The phagocytes can leave the blood vessels, and they take part in natural recovery in inflammation and in healing damaged tissue.

Pharaoh Kingly title in ancient Egypt. The Egyptian word, "great house," denoting in the pyramid age the royal estates, was used symbolically from the Middle Kingdom onwards, just as the Sublime Porte formerly designated the Turkish sultan. The first pharaoh named in the Old Testament is Shishak; those preceding him in Hebrew history still lack precise identification.

Pharisee Religious party among the Jews originating in the Macabean age. A branch of the Chasidim, their teaching upheld the precise observance of the Mosiac law, both canonical and traditional; they believed in the resurrection of the body and the existence of angels and spirits, thus rejecting the positions held by the Sadducees.

Pharmacopoeia Standard and authoritative work on the composition, preparation and dosage of drugs and pharmaceutical compounds issued in various countries. The British Pharmacopoeia is issued from time to time by the General Medical Council. An addendum is published giving drugs used in India and the Colonies.

Pharmacy Art of preparing drugs and compounding medicines. In its cruder form it was practised in early times by the priests, and in the Middle Ages in Europe by the monks. In its modern form it requires a knowledge of *materia medica* and chemistry, as well as the system of dosage.

The Pharmacopoeutical Society, established in 1841, is the examining body for those qualifying for registration as pharmaceutical chemists under the Pharmacy Act.

Pharos Small island off the coast of Egypt. Here stood the great lighthouse, or Pharos, built by Ptolemy I., about 280 B.C., which was one of the Seven Wonders of the World. Alexander the Great built a great mole to unite the island to his new city of Alexandria on the coast opposite.

Pharynx Cavity at the back of the mouth and extending from the posterior nares to the epiglottis and larynx, where it joins the oesophagus. Into the upper portion of the pharynx open the eustachian tubes on either side. The pharynx is liable to inflammation giving rise to acute or chronic pharyngitis, the former being due to a common cold or to scarlet fever, etc. Chronic pharyngitis or relaxed throat occurs from over strain of the voice or excessive smoking.

Pheasant Genus of game-birds of Asiatic origin (*Phasianus*). They have short slightly-curved bills, short wings

and long tails. Introduced into Roman Britain, the common *P. colchicus*, is now mostly reared by hand; the shooting season lasts from Oct. 1 to Feb. 1. Several other species occur in English coverts, e.g., Reeve's from N. China, with 5-8 ft. black and white tail, Chinese ring-necked and Japanese green pheasants.

Pheasant's Eye Genus of annual or perennial herbs of the buttercup family (*Adonis*), natives of temperate Europe and Asia. Having much divided leaves the annual form, growing wild in Britain, with dark-centred crimson petals, is a garden favourite. Perennial forms with bright-yellow flowers from S.W. Europe are also cultivated.

Pheidias Greatest of the ancient Greek sculptors. He was born c. 490 B.C. Under Pericles he superintended all the works of art designed to beautify Athens. The frieze in the Temple of Athena, called the Parthenon, much of which still survives in the British Museum, was designed by him and executed by his pupils under his immediate supervision, while he himself sculptured the statue of Athena. His statue of Zeus at Olympia was one of the wonders of the ancient world. He died in prison, a victim of the jealousy of his enemies, in 432.

Phenacetin Carbolic derivative of coal tar used in medicine. Comparing colourless, tasteless and odourless crystals, slightly soluble in water, it is employed in 5 gr. or 10 gr. doses, either in cachets or powdered in water, for relieving pain and reducing feverish temperatures.

Philadelphia One of the principal cities of Pennsylvania, U.S.A., and an important port, situated on the Delaware River. It is a great industrial and educational centre and has a university. Its area is nearly 130 sq. m. Founded and named by William Penn in 1682, it has always been in the forefront of American intellectual and political life. Its industries include shipping in all its branches, locomotives, and all industries connected with educational work. It has medical and legal schools, and a vigorous artistic life nourished on its famous art galleries. It has two broadcasting stations (49.5 M., 0.5 kW. and 31.3 M., 0.5 kW.). Pop. 1,950,961.

The ancient city of Philadelphia, one of the seven churches of Asia, was in Lydia, and on its site now stands Ala-Shehr, a walled city, 80 m. from Smyrna.

Philately Science of stamp-collecting. It originated in France in 1862, and in England dates from the Royal Philatelic Society's first meeting, April 10, 1869. World famous stamp collections are the King's and that of the late Philippe von Ferrari, part of which realised £402,965 at auction in 1922-1925.

Philemon Greek dramatist, born about 360 B.C. and dying in 263 B.C. He wrote nearly a hundred plays and founded the New Greek Comedy.

Philemon Influential Christian citizen of Colossae in S. Paul's day. The apostle's New Testament letter to him is a charming personal note, appealing to his kindness to condone the offence of his runaway slave, Onesimus, who was now returning to his duty and, like his master, was one of the apostle's spiritual children.

Philip Christian saint. He was one of the seven entrusted by the early

Christian community with certain temporal affairs as deacons, thereby relieving the apostles. After his colleague Stephen's martyrdom he preached in Samaria, baptised Queen Candace's Ethiopian eunuch, and subsequently entertained S. Paul at Caesarea when journeying to Jerusalem. Philip the deacon is commemorated on June 6.

Philip Six kings of France. Philip I. (1059-1108) increased the power of the French crown by adding to the royal domains. Philip II. (Philip Augustus, 1180-1223) established a strong monarchy. He took from the English king the greater part of their lands in France, and secured his possession by his victory over the combined forces of John and the Emperor Otto IV. at Bouvines in 1214. He strengthened the royal authority by crushing rebellious vassals, allying with the towns and the merchants and organising a good administration. His policy was followed by his successors. Philip IV. (1285-1314) was involved in a struggle with Pope Boniface VIII., in which he gained the victory, again strengthening the authority of the French Crown. In the reign of Philip VI. (1328-1350) the Hundred Years' War with England began. Philip himself led the French forces, which were routed at Crécy, 1346.

Philip Five kings of Spain, of whom the most important was Philip II. Born May 21, 1527, he succeeded his father, the Emperor Charles V. (q.v.) in 1556. His second wife was Mary, Queen of England. A bigoted Catholic, his chief object was to restore the supremacy of the Catholic Church, overthrown by the Reformation. This policy resulted in war with his subjects in the Netherlands and led eventually to the establishment of the independent United Provinces. In France he supported the Catholic party, led by the Guises. He carried on a long struggle with Elizabeth of England, supporting plots in favour of Mary, Queen of Scots. Elizabeth in turn gave help to the Netherlands, and English seamen plundered Spanish galleons returning from America. The complete defeat of the Great Armada in 1588 finally broke the power of Spain. Philip died Sept. 13, 1598, and was succeeded by his son, Philip III.

Philip of Macedon. King of Macedonia from 359-336 B.C. On his accession he entered upon a career as a military leader, which made him ruler of the whole of Greece. Against his ambitious designs the Athenian orator, Demosthenes (q.v.) directed his famous *Philippic* orations. He was murdered at the age of 46 on the eve of his departure for a Persian campaign, but not before he had laid the foundations for the even greater conquests of his son, Alexander.

Philippi City founded by Philip of Macedon in Macedonia. S. Paul founded a church here to which he addressed an epistle.

The Battle of Philippi was fought in 42 B.C. and was a victory gained by Octavian and Antony over Brutus and Cassius.

Philippians Epistle to the New Testament book comprising the last letter of S. Paul now extant. Its authenticity is fully established. It was sent from prison, apparently in Rome, to Philippi, the scene of the apostle's earliest European labours.

Philippine Islands Group of islands between the Pacific Ocean and the China Sea, discovered

by Magellan in 1521 and ceded by Spain to the U.S.A. in 1899. The largest are Luzon, 40,814 sq. m. and Mindanao, 36,908 sq. m. Manila, on Luzon, is the capital. The islands are very productive and well timbered. Rice, coconuts, sugar, hemp and tobacco are the principal crops, while the forests yield valuable timber. Education is well organised and there is a university. Pop. 12,100,000.

Philistines Ancient people occupying the Palestine coast-lands S. of Joppa. Apparently of Anatolian origin, their confederacy of five cities, Ekron, Ashdod, Gath, Ashkelon and Gaza, came into conflict with Israel under Samson, Samuel and David. Legendary association with a giant race lacks archaeological support. Becoming thoroughly Semitised in language and religion, they accepted Assyrian domination, c. 700 B.C.

Phillipotts Eden. British novelist and dramatist. Born in India, Nov. 4, 1862, and educated at Plymouth, he published a series of novels with a Devonshire and especially a Dartmoor setting. These include *Children of the Mist* (1898), *The American Prisoner* (1904), *The Mother* (1908), and *Wadcombe Fair* (1913). Of his plays, *The Farmer's Wife* (1917) and *Yellow Sands* (1926) were outstanding successes.

Philology Term denoting originally the study of what is said and written, now reserved for the study of the words themselves. It may investigate the beginnings of human speech or the origin, meaning and use of an individual language's component parts. Comparative philology arose when Sir W. Jones, 1786, observed that Sanskrit, Zend, Greek, Latin, Celtic and Gothic constituted one, the Aryan, family. Other groups are the Semitic, Altaic, Austric, Bantu, etc. Human speech is classified as isolating or monosyllabic, each word having a radical value only, e.g., Chinese, or inflectional, certain elements expressing grammatical relations. Some, e.g., Turkish, with inflections of independent form and meaning, were formerly called agglutinative. Some, e.g., Latin, attaching inflections to roots, are called synthetic; some, e.g., English, replacing inflections by independent elements, are analytic.

Philomela In Greek legend, daughter of Pandion, King of Athens. The Thracian King Tereus married her sister, Procne, whom he concealed and, pretending that she was dead, married Philomela also. In revenge the flesh of his own son, Itys, was served up to him. Tereus pursued her with an axe and she became the nightingale.

Philosophy Term meaning the knowledge of, or search for, the ultimate principles of knowledge or being. It is derived from Greek words meaning "love of wisdom." Schwegler defines philosophy as "reflection, the thinking consideration of things." Philosophy, the same writer says, distinguishes itself from the empirical sciences not by its matter, which is the same as that of the latter, but by its form, or method, its mode of knowing.

Socrates used the term, in contradistinction to the name of sophists (wise men) adopted by Protagoras, Prodicus, Gorgias and other of his contemporaries, to denote his own attitude towards the questions debated by the Greek teachers. The term philosophy had a wider meaning in the Middle Ages than now, being divided into natural philosophy, moral philosophy and metaphysical philosophy. The first

is now called physical science, and the second ethics, while metaphysics denotes the philosophy of cause and effect, or the nature of being.

Phlebitis Inflammation of the veins. It results from inflammation of the surrounding tissue, blood poisoning, etc., and may lead to the formation of blood-clots. In some cases surgical treatment is necessary, while in all cases complete rest is essential, especially where a clot may have formed.

Phlox Genus of herbs, mostly perennials, allied to Jacob's Ladder, of N. American origin; one occurs in Siberia. With simple leaves and salver-shaped flowers, panicled or single, many garden forms have come from the perennial *P. paniculata* and *P. maculata*, and the dwarf moss-pink, *P. subulata*. The half-hardy annual, *P. drummondii*, has also yielded vivid blooms.

Phoenicia Strip of Syrian coast-land between Lebanon and the Mediterranean. The Phoenicians (the Sidonians of the Bible) were great colonisers. They founded Carthage (q.v.) and were the greatest merchants and seamen of the period. Tyre and Sidon were their principal cities, and the Tyrian purple, a rich dye, one of their main objects of commerce. They penetrated as far as Cornwall and the Scilly Isles where they traded for tin. Their place in history ends with the fall of Tyre to Alexander the Great in 332 B.C.

Phoenix Mythical bird of gorgeous plumage. Only one male bird was supposed to exist, and it lived, according to various accounts, from 500 to 12,954 years. At the end of this time it burnt itself on its nest, a new phoenix arising from the ashes.

Phoenix Industrial city situated on the Salt River in Maricopa Co., Arizona, U.S.A. It is the capital of the state and has a trade in fruit, olives and livestock. It has a population of 45,000.

The Phoenix Islands are a small uninhabited group lying between the Equator and Samoa.

Phoenix Park Public Park of Dublin, comprising 1752 acres, and surrounding the Viceregal Lodge and other official residences. The zoological gardens are also included. In 1882 Lord Frederick Cavendish and T. H. Burke were murdered here.

Phonetics Study of speech-sounds, especially in man. The human voice, inarticulate or articulate, results from the passage of air through the larynx. Modified by the vibrating vocal cords and the relation of the mouth-parts to the mouth and nose-cavities, which act as sounding boards, the volume and resonance of the sounds produced are determined by physiological principles. Modern authorities classify consonants according to the place of articulation as labials, sibilants, interdental, dentals, palatals and gutturals. Vowels are modified voiced sounds without audible friction. The International Phonetic Association uses a system of script which clearly individualises the pronunciation of words in a language.

Phonograph Machine for recording and reproducing sounds, invented by Edison. In its earlier form it consisted of a revolving metal cylinder with a spiral groove cut in its surface which was covered with tinfoil, the groove forming the path of a needle connected with a delicate diaphragm. Sound waves entering a receiver set up vibrations in the diaphragm, causing

the needle to indent the tinfoil. The metal cylinder is now replaced by one of wax.

Phosphates Compounds of phosphoric acid and various bases. In commerce it means, chiefly, phosphates of lime, occurring as mineral deposits and used largely as fertiliser. The impure massive form of the mineral apatite known as phosphorite consists of calcium phosphate, fluoride and chloride, and is an important source of phosphates. Other phosphatic deposits represent mineralised guano or other organic material. For manurial purposes the natural phosphates are converted into superphosphate by treatment with sulphuric acid.

Phosphorescence Power possessed by certain animals and plants of emitting light, a property shared also by some minerals. It occurs in the glow worm, firefly and many marine creatures, especially the deep sea fauna. The phosphorescence of the sea is largely due to swarms of minute protozoa (*Noctiluca*). Some minerals, such as the diamond and fluor-spar, become luminous in the dark, either by friction, heat or previous exposure to sunlight.

Phosphorus Non-metallic element having the symbol P and atomic weight 31.0. It is widely distributed in nature as phosphates, occurring mostly as calcium phosphate. It is a yellowish wax-like solid, which readily oxidises in the air, emitting a pale greenish light. By heating to between 240° and 250° C., it is converted into an allotropic, non-poisonous and non-luminous form, red phosphorus, used in match manufacturing. Phosphorus is employed in making vermin killers, phosphor bronze and various organic compounds.

Photo-Chemistry Branch of physical chemistry. It covers the chemical effects of electromagnetic radiations of various wave-lengths, from the invisible infra-red rays at one end of the scale through visible light rays to ultra-violet, X-rays and the most penetrating gamma rays at the other. Photography is the best known development, but the effects of the invisible rays are the subject of special study leading to important results in the higher branches of chemical science.

Photo-Electricity Branch of physics dealing with the electrical effect of radiations on metallic and other surfaces. It was long known that certain radiations facilitated the passage of electrical discharges, now recognised as due to their power of causing the emission of electrons. The photo-electric cell is a development now widely used, especially in connection with television and the sound film.

Photo-Engraving Printing term. Exposure of a prepared plate under the negative of a line drawing renders the lines insoluble while the balance may be removed, enabling reproductions to be printed. Pictures must first be photographed through a "screen," breaking the image into dots. Exposure and development of a prepared copper plate under the negative permits the copper plate subsequently to be etched into similar dots from which reproductions may be printed.

Photography Process by which pictures are produced by the action of light upon surfaces treated with chemicals sensitive to light. In the 18th century chemists had noticed the action of

light upon silver salts and other substances and the production of fugitive images upon a suitable material, but about 1826-29 a Frenchman, Niepce, succeeded in producing pictures or "heliographs" by means of a sensitive film of bitumen and in collaboration with Daguerre further improved his process.

In 1839 Daguerre invented the daguerrotype in which metal plates coated with silver iodide were used. Meanwhile Fox-Talbot discovered the art of fixing silver nitrate negatives, with common salt, thus producing permanent prints. This process was improved further by the use of hyposulphite of soda by Herschel, and the introduction of glass instead of paper for negatives followed by the use of sensitised albumen films. The next advance was made in 1851 by a sculptor, Scott Archer, who introduced the wet plate with collodion sensitised by silver iodide. In turn the wet plate process was superseded by the dry plate or gelatine bromide process in 1871 and more recent developments have been in colour and motion photography and the use of roll films.

Photometer Optical instrument used for measuring the intensity of light and the comparison of the illuminating power of light from different sources. In photometry the unit is the light from a standard sperm candle burning 120 grains per hour, the illuminating power of light from any source being expressed in terms of candle power. The different forms of photometers are constructed so as to enable the observer to judge the equality of illumination of two adjacent surfaces.

Photophone Apparatus devised by Prof. Graham Bell in 1880 for transmitting articulate speech to a distance along a beam of light. The principle involved in the photophone is the sensitivity of the element selenium, its electrical conductivity being increased by exposure to light.

Photosphere Name given in astronomy to the luminous envelope or radiating surface of the sun, from which light is emitted. Its surface is not uniform in texture, as by aid of the telescope it is seen to have a mottled appearance formed by brilliant areas in a less luminous network, the "rice grains" of Langley and Janssen.

Phrenology Empirical system of psychical faculties and disposition may be gauged from the shape of the skull. Founded early in the 19th century by F. J. Gall, and developed especially by J. K. Spurzheim, who left him in 1813, it asserted that mental powers comprise innate faculties independently located in definite brain-regions whose size corresponds with the skull's individual configuration. Popularised for a time in Great Britain and America, the system utilised phrenological charts, locating 42 faculties, emotional or intellectual.

Phthisis Greek word, "wasting," formerly applied—like consumption—specifically to the wasting lung-disease now called tuberculosis (q.v.). It should be distinguished from chronic interstitial pneumonia.

Phylloxera Genus of insects belonging to the aphides or plant-lice family. One, *Phylloxera vastatrix*, a native of North America, is the most dreaded insect pest of the grape vine. It appeared in France about 1860 and spread over Europe, ruining the vineyards, and later ravaged in turn many other parts of the world.

Physician One skilled in the art and practice of medicine. Only those who are qualified in medicine, surgery and midwifery are allowed to practise as medical practitioners and are registered as such under the Act of 1858.

The Royal College of Physicians whose headquarters is in Pall Mall East was established in the early 16th century. It gives degrees of licentiate and fellowship, L.R.C.P. and F.R.C.P.

In Scotland the Royal College of Physicians of Edinburgh was founded in 1681 and has its hall in Queen Street; there is a similar institution in Dublin.

Physics Term applied to the branch of science dealing with physical phenomena and with the laws governing these natural events. The science is based necessarily upon experimental work to obtain data for the stating of the mathematical laws which rule this material universe. In this investigation a study is made of the properties of matter and the phenomena relating to the manifestation of energy in its various forms. The range of study being so wide, physics is broken up into sub-divisions, such as mechanics, dynamics, optics, sound, heat, electricity, magnetism and radiation. In each branch the subject may be considered from a practical or mathematical standpoint.

Physiognomy Art of judging the character of a person from the countenance or external appearance. Although a belief in this art is very old and widespread it has been found difficult to formulate definite rules in accordance with scientific ideas. At the same time physiognomical methods have been found useful in pathology and criminology.

Physiology Section of biology concerned with the functions or life processes, as distinct from morphology, the study of form and structure. In its earlier phase the study of living organisms was mainly from the point of view of morphology, but in comparatively recent years it became recognised that form and structure must be interpreted in terms of the life activities of plants and animals.

—Owing to the ever increasing range of investigation, physiology has widened out into the study of the organism in relation to its environment, forming the branch of ecology. Another branch, comparative physiology deals with the comparative study of the functions in different groups of organisms. Further, the progress of physiology has been dependent upon the advances made in the allied sciences of chemistry and physics, a knowledge of the special technique of these being essential for physiological investigation.

Pianoforte Percussive musical instrument. Cristofori, born in 1651, evolved from the dulcimer his *Clavicembalo col piano e forte*, the first of true pianofortes. Silbermann improved it, Stein, Shudi and Broadwood added the pedals, and Clementi and Beethoven influenced its subsequent evolution. The keyboard comprises a seven times recurrent group of seven white and five black digitals, each of which, when depressed, moves internal mechanism causing a felt-covered hammer to strike one of a series of wires of graduated length and varied gauge and tension. Unwanted vibrations are checked by dampers, which can be put out of action by the right pedal. The left pedal diminishes sound-volume by preventing in three ways

(varying according to the pianoforte's make) the full impact of hammer-force on the wires.

Piastre Coin denomination. The Turkish Lira, nominally 18s., contains 100 piastres each 40 paras. Silver pieces of 1, 1, 5, 10 and 20 piastres are coined, besides copper fractions, and theoretically gold pieces also. The Egyptian pound, nominally 30s. 6d., is coined in similar denominations, besides nickel and bronze fractions. French Indochina uses a silver piastre, nominally 2s.

Piave River of Italy. It rises in the Carnic Alps and flows through the north of the country until it falls into the sea by two mouths near Venice. It is about 140 m. long. There was some fighting along the river during the Great War. After their defeat at Caporetto in Oct., 1917, the Italians fell back behind the Piave, where, with the assistance of some British troops, they prevented the Austrians from advancing further. In June, 1918, there was renewed fighting. The Austrians crossed the river, but were driven back. Towards the end of the following October the Italians and the British contingent advanced from the Piave and drove the enemy before them until the armistice.

Piazza Italian word for a square or open space. The most famous is the piazza of St. Mark in Venice. They are found in other Italian cities.

Picardy Province of France before the Revolution. It now covers the department of Somme and portions of those of Aisne, Oise and Pas de Calais. Its principal city was Amiens, on the Somme. The province was ceded to Philip the Good, Duke of Burgundy, in 1435, and annexed to the crown of France in 1477.

Picasso Name taken by Pablo Ruiz, Spanish painter. Born at Málaga, on Oct. 23, 1881, he came to Paris and was associated with Braque (1906-12) becoming known for his cubist works. He was influenced by Cézanne and El Greco. Later he reverted to the manner of Ingres, turning out pictures in a less challenging style. In 1931 an exhibition of his works was held in London.

Piccadilly London thoroughfare. It runs from Hyde Park corner to Piccadilly Circus. Here are a number of the principal clubs, several hotels, and Burlington House, occupied by the Royal Academy, the Royal Society of Arts, etc. Regent St. crosses Piccadilly Circus, and Coventry St., Shaftesbury Ave., and Glasshouse St. lead out of it.

Piccolo Smallest flute. It sounds an octave higher than the concert flute, and than its written part. It is pitched in D for ordinary orchestral use, in E flat and F for military band purposes.

Pickering Market town and urban district of Yorkshire (N.E.), 32 m. from York, on the L.N.E. Ry. (Junction). The church (partly Norman) contains ancient mural paintings. Pop. (1931) 3668.

Picketing Term denoting the posting of persons about a works, during a strike, to dissuade the employees from working. Made illegal in 1875 (so far as any compulsion was brought to bear by the pickets), what is termed peaceful picketing was legalised by an Act of 1906. An enactment of 1927, following on the general strike of 1926, made picketing illegal, if committed in respect of a strike declared unlawful. See TRADE UNION.

Pickford *Mary (née Smith)*. American cinema actress. Born in Toronto, April 8, 1893, she married Douglas Fairbanks, March 28, 1920. Appearing on the stage in 1898, she afterwards acted in New York, and began screen work under D. W. Griffith. The Mary Pickford Film Corporation was formed in 1916 and gave her the highest salary in the profession. She appeared in many films, including *Rebecca of Sunnybrook Farm*, *Daddy Long-Legs* and *Coquette*. In 1919 she became an independent producer.

Picric Acid Synthetic compound, also known as trinitrophenol, prepared by the nitration of phenol or carbolic acid, or by the nitration of monochlorobenzene, picric acid is a poisonous, yellow crystalline substance used in the manufacture of explosives (lyddite), as a dye for cotton, and in medicine as an antiseptic, and in the treatment of burns.

Pictography (or Picture writing). Use of pictorial symbols to denote facts, events or ideas. Derived from the primeval arts of design, it was man's earliest method of making a more or less self-explanatory record. In the early metal ages of the Old World it was destined to pass into a alphabetic writing. Carried during the pre-metallic age into America, it developed local systems of picture-writing among the N. American plains Indians, and a more complex symbolism among the pre-Columbian Maya and Aztec peoples.

Pictou Seaport of Nova Scotia, Canada. It is on the north side of Pictou Bay, an inlet of Northumberland Strait, 118 m. from Halifax. Coal is exported. Pop. 3000.

Picts People occupying E. Scotland from pre-Roman times onwards. Apparently sharing N. Britain with the 3rd-century Caledonians, and first mentioned in Constantius Chlorus' campaigns, 296 and 306, their subsequent incursions S. of Hadrian's Wall helped the Scots to harass the Roman power. Their turbulent history is pictorially recorded down to Kenneth MacAlpin, a Pict by maternal descent, who united Pict and Scot under one rule, 844.

Piedmont Department (*compartimento*) of N.W. Italy, including the provinces of Alessandria, Novara, Cuneo, Turin, Aosta and Verceil. Lake Maggiore is on its E. border, and its French and Swiss borders are mountainous, enclosing fertile plains which produce fruit, chestnuts, olives, rice and wine. The Po and its tributaries traverse the district, which covers an area of about 11,800 sq. m. For centuries it formed part of the dominions of Savoy, was occupied by the French, 1796, passing to Sardinia in 1814. It became part of the kingdom of Italy in 1859.

Pier Architectural term applied to an isolated mass of masonry, forming the wall between two adjacent windows or openings or to the massive columns of a Norman arcade, also to the clustered columns of some Romanesque churches as in the nave of St. Miniato, Florence. Norman piers of the 11th and 12th centuries are usually massive with a rubble core faced by ashlar, and are rectangular or more or less circular, the two types often being used alternately in an arcade.

Pietà Term in art used for a representation of the Virgin embracing the dead body of Jesus, or of similar scenes at the deposition from the Cross. *La Pietà*, a group

of sculpture of this type executed in St. Peter's, Rome, was one of the early masterpieces of Michelangelo, and this subject also has been the theme of many paintings.

Pietermaritzburg City of South Africa, also called Maritzburg, the capital of Natal. Founded by the Boers in 1839, it stands near the Umsindusi River, 73 m. by rly. from Durban. Industries comprise brickmaking, tanning and brewing. Pop. 29,671 (whites).

Pig Animal belonging to the family *Suidae* of the order *Ungulata*. The group comprises, besides the true pig, the wart-hog, bush pig and babyrussa. Domesticated pigs are derived from the wild boar. Principal British breeds include the large white, middle white, small white, Tamworth, large black, small black, Lincoln and Berkshire. Though in a wild state the pig frequents marshy regions it is a mistake to suppose that the domesticated animal is dirty or loves to wallow in mud. It pays to provide pigs with cleanly, roomy and well ventilated sties. An omnivorous feeder, the pig requires proper, well-varied diet, and will not thrive on garbage. *See* Bacon.

Pig Iron Crude iron, the product of the blast furnace, containing about 3 per cent. of carbon and small quantities of silicon, manganese, sulphur and phosphorus. It is hard, brittle and moderately fusible, and is cast in U-shaped moulds called "pigs."

Pigeon In general, all birds belonging to the order *Columbiformes* (true pigeons, doves and certain extinct birds, e.g., the dodo). In its more limited meaning the name is given to members of the genus *Columba*, comprising about 70 species, the typical pigeons. Widely distributed over all but the coldest regions, the genus is particularly numerous in Australia, Malay Archipelago, New Guinea and adjacent islands.

British species include the wood pigeon, stock dove and blue rock. Domesticated pigeons include many fancy varieties with widely differing characteristics. The homer is used for message carrying, the carrier being a purely fancy strain. The pouter has an extremely large crop; the tumbler is distinguished for its manner of flight: the fantail by its widely expanding tail. Much attention is paid to the training of homing pigeons for long distance flights and periodical contests are held, the birds being flown from far distant starting places to their home.

Pigment Colouring matter. In painting it may be of mineral, vegetable, animal or synthetic origin. As a rule, mineral pigments are the most permanent, while animal and vegetable are fugitive. Synthetic substances such as alizarin and aniline derivatives now replace many of the older natural pigments.

Pigment is present in the epidermis of many mammals, in birds chiefly in the feathers, and in fish, insects and crustaceans in special secreting cells. Apart from pigments the colours of plumage, hairs, etc., are due largely to reflection, interference and other optical effects. Haemoglobin, the colouring matter of blood, and its derivatives form the commonest of the animal pigments.

Pig Sticking Sport of hunting the wild boar, popular in India. Hunters in parties of three or four pursue the animal, when beaten out of cover, and endeavour to ride it down and spear it.



PHOTO-ENGRAVING. —The three stages in the process of printing colour from three separate photo-engraved plates in consecutive and superimposed workings. 1. Yellow (from blue filter negative). 2. Red (from yellow filter negative). 3. Blue (from red filter negative); 4. Complete picture.

Since the boar, when wounded, may turn and show fight, pig sticking involves some danger, and demands coolness, nerve, and excellent horsemanship.

Pike Infantry thrusting weapon. It comprised a long straight shaft and sharply-pointed metal head, conical or flat and spearlike, the butt being sometimes spiked. It dominated the infantry equipment of 15th century Europe, especially among the Swiss, who used 18 ft. pikes besides various types of halberds. The 17th century bayonet displaced the pike.

Pike Family of soft-finned, freshwater fishes inhabiting N. temperate regions. The voracious common pike, *Esox lucius*, of Britain and Europe, prefers lakes and sluggish reaches. Its long compressed body, up to 30 lb. and more, is covered with small scales, the large mouth being armed with strong teeth. The young are called Jack.

Pilaster Architectural term for a flat rectangular column, either fluted or non-fluted, built into and partly projecting from a wall. In Renaissance architecture slender pilasters often separated the round-headed windows from one another in secular Italian buildings, and in the Tudor and Stuart period walls were often covered with classical pilasters.

Pilate Pontius. Roman procurator of Judaea, Samaria and Idumaea, under whom Jesus Christ suffered crucifixion. Coming from Tiberius' household, apparently a freedman, his unsympathetic ten years' governorship, A.D. 26-36, is noted with indignation by Josephus and Philo. His attitude during the trial of Jesus has in all ages been variously interpreted. The Abyssinian Church commemorates him as a saint on June 25; the Eastern Church his wife, Procula, on Oct. 27. Legend exiles him to Gaul, ascribing him to suicide.

Pilatus Mountain of Switzerland, about 5 m. from the south arm of the Lake of Lucerne, 6996 ft. high. The name has no connection with Pontius Pilate, but is derived from Mons Pilaatus, "the cloud capped mountain."

Pilchard Marine food-fish of the herring family (*Sardinia pilchardus*), abundant in the Mediterranean and on the Atlantic coasts of N. Europe to the English Channel. The sardines of the W. coast of France, 5-7½ in. long, tinned in oil for export, are immature fish of the same stock as that up to 14 in. long, which furnishes the pilchard fishery off Cornwall and adjacent coasts. An allied species occurs on the Pacific coast of America, New Zealand and Japan.

Pile-Dwelling Primitive habitation built on piles. This constructional method arose in neolithic Europe, especially on shallow lake-margins, and continued through the early metal ages. It still occurs in aboriginal Africa, pile-granaries for protection from animal depredation being also used, as formerly by the Maori. Borneo raises piles 40 ft. high. In New Guinea and neighbouring islands pile-villages resembling those of neolithic Europe often extend far out to sea. They occur also in the Burmese Shan States and the Nicobars. See LAKE-DWELLING.

Piles (or hæmorrhoids). Dilated condition of the veins at the lower end of the rectum, sometimes protruding through the anus and accompanied by bleeding. Since they are usually caused by constipation or some internal

disorder, strict attention should be paid to the diet and general health. Diet should be simple and contain plenty of fruit and vegetables; alcohol is prohibited; drastic purges should be avoided, but the bowels can be regulated with liquid paraffin. Scrupulous cleanliness of the parts is essential, and the application of vaseline will aid in defecation. If the condition is severe a doctor should be consulted.

Pilewort (or Lesser Oelandine). Perennial herb of the buttercup family (*Ranunculus acris*). The fibrous roots develop annually several small stout cylindrical tubers, used by herbalists for curing piles, and when boiled an agreeable pot-herb. The shining stalked heart-shaped leaves contrast with the starry, single bright-yellow, 1 in. flowers. See CELANDINE.

Pilgrim One who, from religious motives, journeys to a place held sacred. Pilgrimages are undertaken for penance, in discharge of religious obligation, or in quest of bodily or spiritual benefit. The practice traceable to ancient Greece and W. Asia, still prevails in India, and is enjoined upon Moslems to Mecca and elsewhere. Christian pilgrimages to Palestine especially developed after Constantine. Mediaeval Europe also fostered visiting the tombs of saints, as those in Rome, St. James of Compostela, Becket at Canterbury and Our Lady of Walsingham; while curative pilgrimages are still made to Lourdes.

Pilgrim Fathers Earliest settlers of the Plymouth colony, Massachusetts, and specifically the first company of emigrants who sailed from Plymouth, Devon, in the *Mayflower*, reaching Plymouth, Rock, Massachusetts, 1620. They were Puritans, largely from S.E. England, who left the homeland under a royal promise of non-interference with their freedom of worship overseas. The tercentenary of their sailing occasioned enthusiastic celebrations in England, Holland and America, 1920. The oldest Congregational church in London, founded in the New Kent Road, 1616, was enlarged by American subscribers in memory of Southwark men who sailed in the *Mayflower*, 1656, being called the Pilgrim Fathers Memorial Church. See MAYFLOWER.

Pilgrimage of Grace Insurrection in the N. of England, 1536-7. Occasioned by the dissolution of the smaller monasteries and various economic grievances, a Lincolnshire rising was quickly suppressed. A more formidable one, headed by Robert Aske and other Catholic gentry, broke out in Yorkshire; the leaders were executed, and a Council of the North established.

Pilgrim's Way Road used by pilgrims through Winchester to the shrine of St. Thomas & Becket at Canterbury, following, in part, a more ancient track. It is about 120 m. long and goes via Alresford, Farnham, Albury Pk., Burford Bridge, Merstham, Chevening, Mosham, West Malling, Hollingbourne and Charing.

Pilgrim Trust Fund founded in 1930 by an American, Edward Stephen Harkness. He set aside a sum of £2,000,000, the interest of which is devoted to assisting charitable causes in Great Britain, in recognition of the way the country had discharged its obligations since the war. A trust was formally instituted with Mr. Stanley Baldwin, M.P., as president and Mr. Thomas Jones as secretary.

Pillory Form of punishment used in England and some European countries. It consisted of a wooden frame supported upon a post, the culprit's head and hands being thrust through holes in the frame. In the 17th century it was used for punishing offences such as unlicensed publishing of books and seditious libel. At the beginning of the 19th century it was still in use for perjury, but was abolished in 1837.

Pilot Person who navigates a ship or controls an aircraft. A licensed pilot is employed to navigate a ship into or out of a port or harbour, through a river, channel or road. When a vessel wishes to enter, e.g., a port, a recognised signal is made and a local pilot goes out to board the vessel for the purpose. An outgoing ship drops the pilot after he has conducted her into open water. Generally it is compulsory for a ship to be conducted by a licensed pilot when entering or leaving a port. The master or mate, however, may be a qualified pilot. Licensing is carried out by the local chief officer of customs.

Pilots for aircraft are certificated after completing specified training and passing appropriate tests.

Pilot Fish Subtropical marine fish of the horse-mackerel family (*Naukrates ductor*). About 12 in. long, spindle-shaped, steel-blue with dark vertical bars, it often accompanies sharks and ships, doubtless for the food supply. The popular notions that it warns sharks of the baited hook and sailors of the proximity of land are alike fabulous.

Pilsudski Joseph. Polish statesman. A Lithuanian, born in Nov., 1867, he was in conflict with the authorities while still a student, on account of his nationalist and socialist tendencies, and was exiled, spending 4 years in Siberia. Escaping from a later imprisonment in St. Petersburg, 1901, he visited Britain and the East, but the outbreak of the Great War found Pilsudski again in Poland, whence he invaded Russia with a Polish army. He was chosen President of the new republic set up in Poland, 1919, resigning, 1922. He was made Marshal, 1920. He headed a revolt in 1926 which brought about the fall of the government, himself becoming Premier and Minister of War. Resigning the major office, 1928, he became virtual dictator. Pilsudski again became Prime Minister in 1930, but in March, 1932, he was appointed Minister of Military Affairs, and Alexander Prystor took office as Premier. He has written many historical works dealing mainly with Poland's struggles for independence, including *Historical Corrections* (1931).

Pitldown Skull Fossil human bones discovered at Pilt Down, Sussex, 1911-15. Quaternary gravels yielded fragments of a skull, partly mineralised, the right half of a lower jaw and some teeth. Subsequently an implement hewn from an elephant's thigh-bone emerged close by. Named *Eoanthropus*, "dawn-man," the remains represent the oldest known human race in Europe.

Pimento (or Jamaica Pepper). Dried fruit of a W. Indian evergreen tree of the myrtle order (*Pimenta officinalis*), widely grown in Jamaica and Central America. Also called allspice, because its flavour supposedly combines those of cinnamon, nutmeg and cloves. Its essential oil, largely eugenol, is used in pharmacy like oil of cloves, and for perfuming soaps.

Pimlico District of London between Chelsea and Westminster, in the city of Westminster. It is bounded by the Thames on the S. and E., Chelsea on the W., and Belgrave and Victoria St., Westminster on the N. Pimlico Road connects Royal Hospital Rd. and Buckingham Palace Rd.

Pimpernel Genus of herbs of the primrose order (*Anagallis*), natives of Europe, Asia and N. Africa. The wheel-shaped corollas of *A. arvensis*, scarlet in Britain, blue in continental Europe, expand in clear forenoons; hence the name poor man's weather-glass. The allied bog-pimpernel has rosy, funnel-shaped corollas.

Pinchbeck Reddish-yellow alloy of copper formerly much used in the manufacture of cheap jewellery and cases for watches, its composition varying from 80 to 93 per cent. copper, with 20 to 7 per cent. zinc. It was named after Christopher Pinchbeck, an 18th century London watchmaker who is said to have invented it.

Pindar Greek lyric poet. Born near Thebes, about 522 B.C., he composed, at the age of 20, a choral ode in honour of a victor at the Pythian games. His *Epinicia* or odes are divided into four books dealing respectively with the Olympian, Pythian, Nemean and Isthmian games. He died in 443 B.C.

Pine Genus of large evergreen cone-bearing trees (*Pinus*), widely distributed in the N. hemisphere. Pines differ from firs in having the needle-shaped leaves clustered in twos to fives. The only species indigenous to Britain is *P. sylvestris*, 70-100 ft. high, popularly called the Scotch fir. The most important timber-tree of N. Europe, it also yields turpentine, resin and tar.

Pineapple S. American perennial herb bearing the *Bromelia* order (*Ananas sativus*), now naturalised throughout the Old World tropics. The edible fruit consists of the flower-spike consolidated into a richly perfumed succulent mass, much improved under cultivation. Introduced into 17th century Europe, it is raised in hothouses, while large canning and export industries have arisen in Singapore, the Azores, Fiji, Hawaii and Natal. Fibre prepared from the leaves yields the grass-cloth of Formosa, Java and the Philippines.

Pinero Sir Arthur Wing. British dramatist. Born May 24, 1855, he was an actor, 1874 to 1881. He produced comedies at the Court Theatre, 1885-93, including *The Magistrate*, *The Cabinet Minister*, *The Amazons*. Elsewhere he staged a drama, *The Profligate*, 1889; and *Sweet Lavender*, a comedy, 1888. *The Second Mrs. Tanguay* gave Pinero a leading position among British playwrights. Other plays include *Trelawney of the Wells*, *The Gay Lord Quex* and *His House in Order*. He was knighted in 1909.

Ping Pong Table tennis game introduced about 1901. It is played on a table 9 ft. by 5 ft., divided by a low net, into two courts. Light wooden racquets and a small celluloid ball are used. Each player serves five times in succession, and the ball must hit the table on the player's side and thence bounce into the opponent's court. No volleying is permitted. Game is 21 up, but it goes beyond that figure if the players are 20 all.

Pink Name denoting cultivated forms of various species of *Dianthus* (q.v.). The pinks of English gardens, single or double,

derive from a Mediterranean form, *D. plumarius*, naturalised in parts of Britain since Stuart times, with rough-edged leaves and fragrant rose-purple flowers, often fringed-petalled. Some tufted rock-pinks come from the native Cheddar and Maiden pinks. Brilliant blooms are furnished by the China or India and Japan pinks.

Pinkerton Allan. American detective. Born Aug. 25, 1819, he emigrated to America in 1842, and opened a detective agency in Chicago in 1850. In 1861 Pinkerton organised the U.S. Secret Service, and was Lincoln's guard. He brought about, in 1876, the suppression of the Molly Maguires, an Irish secret society which had terrorised the coal-producing regions of Pennsylvania. He died on July 1, 1884.

Pinkerton's Detective Agency was carried on by his sons, and became famous for the part it played in solving notable crimes. Allan Pinkerton, a grandson, died in 1930.

Pink Eye Contagious and infectious disease of horses (equine influenza). The membranes of the eye become red and swollen, so that the eye takes on a deep red tinge. The name is also applied to an infective conjunctivitis in human beings.

Pinkie Battle of. Fought Sept. 10, 1547, near Musselburgh, between an English army of 16,000, led by the Protector, Somerset, and the Scots, 23,000 strong. The purpose of the invasion was the enforcement of a treaty of marriage between Edward VI. and Mary, Queen of Scots. The Scots were completely defeated.

Pinnacle Name given to a small sailing boat, often schooner-rigged, and provided with oars for use if needed; also to an eight-oared boat. Pinnaces are used generally as tenders for larger vessels and form part of the equipment of a warship, the modern pinnacle, however, usually being motor driven.

Pinner District of Middlesex, 3 m. from Harrow-on-the-Hill and 13 m. N.W. of London, on the Pin (Metrop., L.M.S. and L.N.E. Ryhs). The flint stone church of St. John the Baptist dates from the 14th century, and contains a mural monument to H. J. Pye, the poet laureate.

Pint Measure of capacity both for liquids and dry goods. The English pint is one-eighth of an imperial gallon, equivalent to 4 gills. In compounding medicines a fluid measure is used, a pint being equal to 20 fluid ounces. A Scottish pint is approximately equal to three imperial pints.

Pinxton Market town of Derbyshire, 6 m. from Mansfield, by L.M.S. and L.N.E. Ryhs. Extensive coal mines are near, and lace is made. Pop. 5348.

Piozzi Hester Lynch. English authoress. Born at Bodvel, Caernarvonshire, Jan. 16, 1741, she married, in 1763, Henry Thrale (d. 1781), a wealthy brewer. They lived at Streatham, London, and here began their famous friendship with Dr. Johnson. Mrs. Thrale, in 1784, married Gabriel Piozzi, an Italian music master, and went with him to Florence. In her *Anecdotes* is a vivid account of Johnson. She also wrote *The Three Warnings*, a novel, and an autobiography. She died at Clifton, May 2, 1821.

Pipe Cylindrical instrument with holes through which air passes, making musical sounds. All wind instruments, including the organ, are "pipes."

There are: (1) Whistle pipes (like Panpipes); (2) Reedpipes, single-reed (like the clarinet), double-reed (like the oboe), and free (like the harmonium); (3) Pipes with cup mouthpieces (like the trumpet).

Organ pipes can be "flue," "reed," "stopped" or "open." See REED.

The tobacco pipe was invented in pre-Columbian America, specimens being found in ancient Indian mounds. Introduced into England by Raleigh in 1586, it was first regularly manufactured out of clay in London in 1619. Briar pipes, a later development, are made from the Mediterranean tree-heath, or *bruyère* root, of E. France and Italy. See TOBACCO.

Pipe Clay Fine white plastic clay containing a higher percentage of silica than kaolin or china clay, and used for making pipes, tiles and as cleaning material for leather.

Pipe-Fish Name of a group of long, slender, tuft-gilled fishes akin to the sea-horse, generally found in the waters of tropical and temperate sea-coasts. The males mostly have pouches for safeguarding the eggs until hatched. Five species in British waters include the sea-addler, 2 ft. long, the great pipe-fish, 18 in., and the worm pipe-fish, 6 in.

Pipe Line Continuous line of pipes for carrying water from a reservoir, or for the transport of petroleum from the oil well to the refinery or port. Oil can thus be brought over great distances, as in the United States where there are over 90,000 m. of underground pipes of 4 to 12 in. in diameter, also in Persia where oil is carried for 150 m. across deserts and over mountains.

Pipe Roll Name given to the early financial records of the Exchequer consisting of a series of parchments originally rolled up together into a pipe-like roll. The first record dates from the reign of Henry I., and a continuous series exist from the time of Henry II. down to 1834.

Pipit Genus of song-birds akin to the wagtails (*Anthus*), widespread especially in the Old World. Of three British species the commonest, the meadow-pipit or titlark, is partly resident, partly migratory. The tree-pipit, a summer visitor, is called the wood-lark in Scotland.

Pippin Name for several varieties of apple, pre-eminently Newtown, Ribston, golden, Blenheim, lemon and Cox's orange pippin. It formerly denoted any apple raised from pips, not by grafting.

Piquet Card game. The two players use 32 cards, twos to sixes being eliminated. Derived from the Italian 16th century *ronfa*, and played in Tudor England in a Spanish form called cent, it was renamed piquet when Charles I. married Henrietta Maria. Each player receives twelve cards, the other eight being available, face downwards for exchange. Points count for various combination and tricks. Since about 1880 rubicon piquet, playing 100 points or six hands, has largely superseded the older five-hand rule.

Piracy Any act of robbery and depredation which if committed upon land, would constitute felony if piracy if committed upon the high seas. Certain other offences are statutory piracies, namely, an act of hostility at sea by a natural-born British subject under colour of a foreign commission; the assisting of an enemy at sea by the same

in time of war; mutiny; the running away with a ship, guns, ammunition or goods; the voluntary yielding up of these to a pirate. The penalty was formerly death, the pirate being tried by an admiralty court; now it is penal servitude for life or less, and offenders are tried in the ordinary way. Piracy is still common in Chinese waters.

Piræus Seaport of Greece, on the Saronic Gulf, 6 m. S.W. of Athens. Founded by Themistocles and Pericles, it was connected to Athens by two walls. Piræus was destroyed by Sulla, 86 B.C., and rebuilt in 1835, after Greece regained independence from the Turks. Piræus is now connected with Athens by railway, and its modernisation was started in 1929. Pop. 217,793.

Pirandello Luigi. Italian dramatist and novelist. Born near Girgenti, Sicily, June 28, 1867, after graduating at Bonn University, he taught in Rome, producing his first book, *Ma Gioconda*, in 1889. In 1910, having published many novels and stories, he began to write plays, the best known being *Six Characters in Search of an Author* (1921), *Henry the Fourth* (1922), *Ciascuno a Suo Modo* (1924). His plays have won him wide recognition by their brilliance and originality.

Pisa City of Italy, on the Arno, 7 m. from its mouth in the Ligurian Sea and 50 m. by railway from Florence. The Gothic cathedral (1063-1118) is a magnificent white marble structure with an elliptical dome 190 ft. high, and the campanile or Leaning Tower (1174-1350) is notable. In 1409 the Council of Pisa was held to deal with the schism which arose as a result of the residence of the rival pontiffs at Avignon. Pop. 77,105.

Pisano Andrea. Italian sculptor and architect, born at Pontedera, c. 1270. He decorated, in relief, a set of bronze doors for the baptistery at Florence. He died, c. 1349. **Nicola Pisano**, born c. 1266, produced the sculptured pulpit in the baptistery of Pisa, his birthplace, and also that of the cathedral at Siena. He died in 1378. **Giovanni**, his son, born c. 1250, built the tomb of Benedict XI. at Perugia. He died c. 1330. **Vittore Pisano** or **Pisanollo**, was an artist and medallist. Born at San Vigilio, c. 1380, he was responsible for portrait medals of many of the contemporary princes. He died in 1456.

Piscina Latin word denoting in ecclesiastical usage a shallow stone basin draining to the earth, used by the priest for ablutions after the Mass. Usually niched in the sanctuary wall on the altar's S. side, it often survives in English pre-Reformation churches from the 13th century onwards, sometimes in elaborate architectural settings. The word means "fish-pond."

Pistachio Nut Kernels of fruit born by the *Pistachia vera*. They are light-green in colour and taste like sweet almonds. They contain over 50 per cent. of oil and about 23 per cent. of albuminoids, and are much used in cookery.

Pistol Small firearm. It was invented at the beginning of the 16th century; the wheel-lock mechanism being used in these and later forms of pistols, although about a century later the flint-lock came into use. The introduction of the percussion cap for larger firearms in the early 19th century led to its use in pistols, superseding the older methods.

The revolver with rifled barrel and revolving cartridge cylinder also came into favour displacing the old type of pistol, as the modern automatic pistol is tending to supersede the revolver.

Pistole Former gold coin of Spain, a double escudo, now obsolete, worth about 17s. The name (French) was also used for the French louis d'or and other gold coins.

Piston Part of a pump or engine. It is a circular plate or short cylinder of metal or other material fitted into a hollow cylinder, in which it moves backward and forward, the movement being caused by fluid or steam pressure. Pistons are used in pumps and various forms of engines.

Pitcairn Small island in the Pacific, equidistant from Lima, Peru and Auckland, N.Z. It was discovered in 1767 by an officer of the *Carteret*, and is occupied by descendants of the mutineers of H.M.S. *Bounty* (1790). It was annexed by Great Britain in 1839. Its area is 2 sq. m.

Pitch Height or depth of sound. Low pitch is produced by slow, high pitch by rapid, vibrations. Standards of pitch have always varied. Apart from ancient practice, there have been the following standards:

1. **Classical Pitch**, estimated at A = 415 to 429 vibrations per second, C = 498 to 515 vibrations per second.

2. **High Pitch** (caused through the increasing brilliance of orchestral playing) which was in 1859 legalised in France as: A = 435 vibrations per second, C true = 522 vibrations per second, C by equal temperament = 517 vibrations per second.

3. **New Philharmonic Pitch**. In 1896 the Philharmonic Society adopted a standard of A = 439 vibrations at 68° Fahrenheit, or A = 435 at 59° Fahrenheit. This low standard is now general in concert use.

English military bands played at High Pitch until 1928 when they were instructed to adopt the Philharmonic Pitch: A = 439 vibrations per second, B flat 465.1 vibrations per second, C = 522 vibrations per second—at 68° Fahrenheit.

On Armistice Day, 1930, the Brigade of Guards publicly set the new standard.

Pitch Term used in mechanics for the distance between the centres of gear teeth, or the crests of screw threads. The pitch is generally referred to as so many threads to the inch, thus four per inch would mean four threads and four spaces per inch in length, the pitch in this case being termed $\frac{1}{4}$ in.

Pitch Black, viscous substance obtained from coal tar as a residue in the still after fractional distillation. It is obtained also from the distillation of oils and wood tar. **Mineral pitch** is the name often given to natural asphalt or bitumen, and **Burgundy pitch** is the resinous exudation from the spruce fir, *Picea excelsa*.

Pitchblende Mineral consisting of a mixture of uranium oxides with oxides, sulphides and arsenides of lead, iron and other metals. Dark brown or black, with a pitch-like lustre, it is the chief ore of uranium and radium as well as various rare metals. Pitchblende occurs in small veins in gneiss, schist and slate in Cornwall, Norway, Joachimsthal in Bohemia, and North America. The Bohemian pitchblende is worked chiefly for sodium uranate and indirectly for radium.

Pitch Lake Name given to a lake of asphalt at La Brea, in the extreme S.W. of the island of Trinidad. Its area is about 100 acres and while the asphalt is firm and solid near the shore it is soft and boiling at the centre.

Pitcher Plant Insectivorous plant, with pitcher-shaped leaf-organs. A large genus of shrubs, *Nepenthes*, found in eastern tropical forests, bears such receptacles; the thick, corrugated mouths produce sweet excretions attractive to running insects, which collect within and are digested by other glandular secretions. In the E. United States the side-saddle plant, *Sarracenia*, also bears insectivorous pitchers.

Pitlochry Village and summer resort of Perthshire, on the Tummel, 28 m. from Perth, on the L.M.S. Rly., near the Pass of Killiecrankie and Loch Tummel. Pop. 2341.

Pitman Sir Isaac. Inventor of the Pitman System of Shorthand. He was born at Trowbridge, Wilts., Jan. 4, 1813, and became a schoolmaster. He published his *Stenographic Sound Hand*, 1837, and two years later set up a printing establishment at Bath. His main object became the teaching and development of his phonographic system of shorthand, which met with extraordinary success. The *Phonetic Journal*, afterwards known as *Pitman's Journal*, was begun in 1842. He was knighted in 1894. He died at Bath, Jan. 12, 1897.

Pitt William. British statesman. Born May 28, 1759, second son of the Earl of Chatham, he took his degree at Cambridge, 1777, and was called to the bar in 1780. Elected M.P. for Appleby, 1781, he was made Chancellor of the Exchequer by Shelburne, July, 1782, but the government fell in the following February. In Dec. 1783, North and Fox's coalition came to an end and Pitt formed a government in which he had to face the opposition of a large parliamentary majority. In 1784 he returned to power, and introduced a number of financial reforms, reorganising the East India Co., and doing away with many sinecures in the Customs Service. He established the sinking fund in 1786.

The outbreak of the French Revolution made many difficulties, and in 1793 Britain went to war with France, Pitt being Minister of War. He suppressed the Irish Rebellion of 1798 and effected the union of the two parliaments by the Act of 1800. He had intended to include a measure for Catholic emancipation, but, owing to the opposition of the king, abandoned this and resigned office early in 1801. He returned in 1804 when fear of a Napoleonic invasion brought him support from all parties. Hearing the tidings of Napoleon's success at Austerlitz, Pitt, then in poor health, returned from Bath to London where he died on Jan. 23, 1806.

Pittenweem Seaport town and burgh of Fifeshire, on the Firth of Forth, 9 m. from St. Andrews. The industries are fishing and the curing of fish. Pop. (1930) 1619.

Pittsburg City of Pennsylvania, U.S.A., situated at the point where the Monongahela and Alleghany rivers join to form the Ohio River. On a number of railway lines (Pennsylvania, Baltimore and Ohio, etc.), Pittsburg is one of the chief iron and steel working districts of the world. Other industries include the manufacture of

locomotives, rails, piping machinery and apparatus, tinplates, bricks, glass, cement and chemicals. Andrew Carnegie came here in 1848 and set up iron and steel works. He founded the Carnegie Institute for technical education in 1900. The city has three broadcasting stations (48.86, 35.25 and 19.72 M.). Pop. (1930) 669,817.

Pityriasis Name of various scaling skin affections. *Pityriasis alba* is commonly known as dandruff. *P. rosea* attacks the trunk and upper parts of lower limbs, where pinkish spots develop. These shed greasy scales from the edges. *P. versicolor* is a parasitic disease, due to a fungus, the patches being irregular and brownish. A more serious disease, often fatal, is *P. rubra*. There is a widespread redness, and large paper-like scales are shed.

Pius Name borne by a number of Popes. Pius X., born June 2, 1835, was pontiff from 1903 until his death on Aug. 20, 1914. He had to deal with the situation created by the separation of Church and State in France, by Briand. He also adopted strenuous measures against the modernists.

Pius XI., born, May 31, 1857, was chosen pope in 1922, on the death of Benedict XV. The notable achievement of his pontificate was the ending of the anomalous condition between state and church existing since 1870, and the re-establishment of the temporal power of the papacy in 1929, which involved the creation of the Vatican City as a state ruled by the pontiff. An enthusiastic mountaineer in earlier years, his *Climbs on Alpine Peaks* appeared in 1923.

Pizarro Francisco. Spanish conqueror of Peru. Born at Trujillo, Extremadura, c. 1478, he entered the Spanish Army and saw service in Italy. He made a voyage of exploration to America and was with Balboa when the latter discovered the Pacific (1513). The conquest of Mexico (1520) aroused in Pizarro the desire to secure Peru. He made a voyage there in 1526, but had insufficient forces to attempt a settlement, and it was not till six years later that Pizarro, Almagro, and 183 men landed at Tumbes. By an act of treachery he captured and executed Atahualpa, and set up Manco as ruler. Cuzco was taken in 1533 and on Jan. 6, 1535, Pizarro founded the city of Lima as the new capital. Almagro conquered Chile, while Pizarro retained control of the N. part of the territory. In 1537 Almagro came to the relief of Cuzco, then besieged by an Indian army, and the revolt was suppressed. Later, war broke out between the two factions and Almagro was defeated and executed by the Pizarrists in 1538. Pizarro himself was assassinated on June 26, 1541, at Lima by the Almagrists.

Placer Term used in mining for alluvial deposits containing gold and tin ores, as well as rarer metals, and consisting of sands, grites and fine to coarse gravels. They represent generally river and lake deposits of recent geological formation, but in Australia and California the placers or "deep leads" are ancient river beds buried beneath basalt.

Plague Term formerly embracing various epidemic diseases, now restricted to a malignant fever whose specific cause, *Bacillus pestis*, was identified, 1894. Epidemics occurred during the Roman Empire in mediaeval Europe, notably in the 14th century Black Death, and in modern times in Hong Kong, Australia, India, Russia and elsewhere. Three-

fourths of all plague cases are bubonic; the remainder are septicaemic, without localised glandular swellings, or pneumonic, with cough and dark expectoration. Mortality is high, especially among Orientals. No specific remedy is known. Hafkine's anti-plague serum has had some success. See GREAT PLAGUE.

Plaice Marine food-fish of the flatfish family (*Pleuronectes platessa*), inhabiting N. European waters, from Iceland to S. of Britain. Allied to the dab and flounder (*q.v.*), but orange-spotted, it may attain 8-10 lb., measuring 30 in. or more, but mostly marketed at half that size. Unlike the turbot, its two eyes occupy the same transverse line.

Plaistow District of London. Between Canning Town and West Ham, 4½ m. from London (Fenchurch Street), on the L.N.E. and L.M.S. Rlys., it houses a number of factories, chemical works and engineering establishments. Pop. 35,900.

Plane Genus of large trees (*Platanus*), constituting an order allied to the walnut, natives of N. temperate regions. They have large deciduous palm-shaped leaves and smooth, whitish bark, scaling off annually in patches, the fruits being small, long-stalked spiky balls. The oriental plane was introduced into Tudor England. The western plane or buttonwood, N. America's tallest deciduous forest-tree, reached Stuart England. The London Plane, *P. acerifolia*, is a hybridised derivative from both; its timber is valued for cabinet-work.

Plane Term used in geometry for any perfectly level surface—that is, one upon which a straight line joining any two points will lie entirely on the surface. In aeronautics the term is applied to the plane or curved structures acting as wings and tail of an aeroplane for purposes of flight.

Planet Name given to one of the bodies in the solar system that revolve round the sun in elliptical orbits. The four planets, Mercury, Venus, Earth and Mars are nearest to the sun and are often termed the inner planets. Beyond Mars lies the belt of Asteroids and the outer planets, Jupiter, Saturn, Uranus and Neptune. Uranus formerly known as Herschel, was discovered in 1781, and certain irregularities in this planet's movements led to the further discovery of Neptune in 1846. The presence of a still more remote planet was suspected, and in Jan., 1930, its existence was confirmed, and to this outermost member of the Solar System the name Pluto was given.

Planimeter Instrument for measuring the area of a plane figure and usually consisting of two hinged rods, the end of one of which is fixed, while the end of the other moves freely, tracing the boundaries of the figure to be measured. The difference between the readings of a small graduated wheel attached to the tracing arm before and after the tracing gives a number proportional to the area.

Plankton Biological name for the floating animal and plant life of the sea, also of rivers and lakes. These organisms are for the most part microscopic, and their immense numbers in many instances give a green or reddish tint to the water. The plankton forms the food of many fishes and other marine animals. As part of the food of the cod it is the origin of the vitamins A and D contained in its liver.

Plant General term for vegetable organisms from the simplest unicellular type to the highly complex herb or tree. In structure and form there is the greatest diversity, for while in the lower types the plant body is but little differentiated, in the flowering plants there is a well-defined root, stem, leaf and flower. Plants feed upon simple inorganic materials and are essentially passive and anabolic organisms. Reproduction ranges from simple fission in bacteria and budding in yeast to the complex sexual process seen in the floral mechanism of the higher plants.

Plantagenet Surname applied to the Angevin kings of England. The house included Henry II., Richard I., John, Henry III., Edward I., Edward II., Edward III., Richard II., Henry IV., Henry V., Henry VI., Edward IV., Edward V. and Richard III. At the death of Richard II. the house of Plantagenet became divided into the two branches of Lancaster and York, so that the line may be regarded as ending with the death of Richard III. in 1399. The name is derived from the *planta genista*, or broom plant, the badge of the house.

Plantain Name denoting various broad-leaved plants. *Plantago* is a genus of herbs, mostly noxious weeds with inconspicuous flowers, distributed over all temperate regions. There are five British species, the fruit-spikes of the waybread or greater plantain being a favourite bird-food; the lamb's-tongue is a lawn-pest. Water plantain, *Alisma plantago*, grows in marshland. See BANANA.

Plantain Lily Genus of perennial herbs of the lily order, (*Funkia*) of Japanese origin. The roots form a bundle of tubers from which emerge large oval or heart-shaped leaves, parallel-veined, sometimes white-striped. The flower-stems bear spikes of white or lilac bell-shaped flowers.

Plassey Village of Bengal. It is about 90 m. N. of Calcutta, and was the scene of a battle between the Nawab of Bengal, Suraj-ud-Dowlah, and Clive, June 23, 1757. The Nawab's army consisted of 18,000 cavalry and 35,000 foot with 50 guns. Clive's numerically weak forces included 1000 whites and 2100 sepoy with 10 guns. The complete defeat of Suraj-ud-Dowlah secured Bengal for the British.

Plaster Cementing material used for making casts of objects and for covering walls and other parts of buildings with a protective and binding layer. For internal walls, ceilings, mouldings, etc., plaster of Paris and various modifications, such as Parian and Keene's cements are used, the aim being to obtain a plaster whose setting is slow enough to be easily worked and which will take paint quickly. For external work Portland Cement, mixed with sharp, clean sand, is used as a covering for brickwork, etc.

The Plasterers' Company is one of the City of London Livery Companies.

Plaster of Paris Form of cement composed of calcined gypsum or sulphate of lime. Plaster of Paris receives its name from the abundant deposits at Montmartre, near Paris. The gypsum, when burnt at a moderate temperature, yields up about three-fourths of its combined water and when reduced to a fine powder, forms a cement which, on the addition of water to make a paste, rapidly sets or solidifies. It is used for casts and plastering.

Plateau Term applied to a tableland or elevated area of more or less level surface. Some are old plains of erosion that have been uplifted by earth movements, others have as their foundation an eroded plain, submerged and covered with stratified sediments, followed by re-elevation, and termed a plateau of accumulation. In England the Pennine Chain is an example of a plateau with uprising peaks and deep river valleys.

Platinum Metallic element, having the symbol Pt, atomic weight 195.23 and melting point 1775°C. Platinum is a silvery white metal having great ductility and malleability, and is unaffected by moisture, air and ordinary acids. In the crude state platinum is found as a natural alloy with palladium, osmium, iridium and other rare metals in the form of small, flattened grains in alluvial deposits, chiefly in the Ural Mts., but also in Canada, South Africa and New South Wales. It is used for making crucibles and chemical apparatus, parts of balances, electrical appliances and jewellery. Its salts also are employed in many industrial processes.

Plato Greek philosopher. Born in Athens 427 B.C., he had political ambitions but came under the influence of Socrates (q.v.) and about 387 founded the Academy, an institute for the study of philosophy, remaining in Athens except for two visits to Syracuse in 367 and 361-60. Perhaps the greatest of all philosophical writers, his works have come down to us in the form of dramatic dialogues in which the chief speaker is Socrates, into whose mouth Plato put theories developed after the former's death. Of these dialogues, thirty-five remain, the most important being the *Gorgias*, the *Protagoras*, the *Phaedo*, the *Symposium*, the *Law* and the *Republic*, in which last Plato antedated much of the most modern political and sociological theory.

Plato was the first philosopher to formulate satisfactorily the principles of ethics. His philosophy is definitely social, and according to him justice and the good can only be completely attained in the social sphere, in which alone the life of the individual finds its true expression. His philosophy was the source of that great body of thought which became known as Platonism, and, through the medium of the neo-platonic philosophers such as Plotinus (q.v.), profoundly influenced Christian thought.

Platoon Division of a company of infantry. In the British Army there are four to a company of infantry. The platoon is commanded by a 1st or 2nd lieutenant and numbers about 60 men. The name comes from the French *peloton*, small body of men.

Platypus Generic name given in 1799 to the egg-laying water-mole of Australia and Tasmania. It was changed in 1800 to *Ornithorhynchus* (q.v.), but is popularly called "the duck-billed platypus." See DUCKBILL.

Plautus Titus Maccius. Roman comic poet. Born about 251 B.C., he wrote plays while employed by a baker, and is said to have been responsible for 130 comedies, of which 20 are extant. They are masterly adaptations from Greek originals, the action rapid, humour keen and shrewd, and the characters lifelike. Among later writers indebted to Plautus must be mentioned Shakespeare, Molière, Addison and Dryden. He died 184 B.C.

Playfair Sir Nigel. British actor and producer. He was born July 1, 1874, and after taking his degree at Oxford he became an actor and played with Benson, Tree and others. As lessee and manager of the Lyric Theatre, Hammersmith, he has produced a number of successful plays, notably *The Beggar's Opera*. He wrote (1925) *The Story of the Lyric Theatre*; *Riverside Nights* (with A. P. Herbert); *Hammersmith Hoy*, 1930. He was knighted in 1928.

Pleasley Village of Derbyshire and Nottinghamshire, 3 m. from Mansfield, on the River Modon. It is served by the L.M.S. and L.N.E. Ryas. There are silk and cotton mills and coal mines in the vicinity. Pop. 2510.

Plebeian In ancient Rome a member of the *plebs* or common people. Originally the inferior citizens descended from subject peoples transplanted to Rome and including freed and fugitive slaves, resident aliens and others, the plebeians had none of the privileges of the patricians, the descendants of the original settlers and the ruling order. In 494 B.C. they secured the right to elect tribunes. When the decemvirate was set up in 451 three plebeians became decemvirs, and later plebeians gained access to the higher offices, including that of consul (q.v.).

Plebiscite In ancient Rome, a law passed by the plebeians assembled in *comitia tributa* or tribes. In present-day usage a vote of the whole electorate taken on a distinct issue. The Treaty of Versailles (1919) provided that a plebiscite was to be taken in areas of mixed population to decide frontier questions, nationality, etc.

Pleiades Conspicuous group of stars in the shoulder of the constellation of Taurus, the Bull. The pleiades form an open cluster of over 2000 stars, of which six or seven are easily visible to the naked eye. They are named after the seven daughters of Atlas and Pleione who, in Greek mythology, were placed among the stars.

Pleistocene Geologists' name for the older formations of the Quaternary or Post Tertiary system of sedimentary rocks, resting on the Pliocene (q.v.) and succeeded by the Recent, those now under deposition. Synchroising with the Glacial or Ice Age, they contain the palaeolithic or older stone-age remains of primeval man, the neolithic being post-glacial.

Pleonaste Variety of the gemstone, spinel. It is an aluminite of magnesia, and contains iron in addition. It occurs as dark-green or black octahedral crystals of a higher specific gravity than typical spinel, and as a constituent of garnet-bearing gneisses and other metamorphic rocks. It is also called ceylonite.

Plesiosaurus Genus of extinct paddle-bearing lizards, found fossil in Mesozoic rocks, especially Upper Triassic and Liassic. Small-headed, large-mouthed, with slender-pointed teeth adapted for fish-catching, they were long-necked, with relatively short bodies and tails. Some members of the family were 45 ft. long. Their four approximately-equal paddles facilitated life in the open sea.

Pleurisy Inflammation of the pleura of serous membrane investing the lung and lining the chest. Occurring oftener in an acute than a chronic form it may be dry or fibrinous, the result of exposure or an

accompaniment of other lung-diseases. There are pains in the side, dry cough and friction-sounds like creaking leather; it usually yields to careful treatment. Sometimes there is effusion of fluid into the pleural cavity, which may necessitate withdrawal by an aspirator.

Plimsoll Samuel. British politician. Born at Bristol, Feb. 10, 1821, he was a clerk at Sheffield and came to London in 1853, commencing business as a coal merchant. In 1868 he became M.P. for Derby and endeavoured to end the evils caused by the use of overloaded and unseaworthy ships. The Merchant Shipping Act, in 1876, made compulsory the affixing to a British-owned merchant vessel of a maximum load line, the Plimsoll Mark, and gave power to the authorities to detain a ship which did not comply. The mark is a circle crossed by a horizontal line. Plimsoll resigned his seat in 1880, and died June 3, 1898.

Plinth Architectural term for the projecting base of a wall, or the square base of a column. In mediæval buildings the plinth may be simply chamfered or in others richly moulded, and in buildings of the perpendicular style in England it is panelled to give verticality. In later architecture it is usually plain.

Pliny Roman writer. His full name was Gaius Plinius Secundus, and he is known as the elder to distinguish him from his nephew (see below). Born c. A.D. 23, after serving in Germany he was made procurator in Spain (67). He was appointed commander of the fleet at Misenum by Vespasian, and succumbed, in A.D. 79, to the suffocating vapours from the eruption of Vesuvius which buried Herculaneum and Pompeii. An indefatigable student, his *Natural History* deals also with such arts as sculpture, painting, etc. He is said to have read 2000 works in compiling this treatise of 37 books.

Pliny the Younger was a Roman writer. His full name was Gaius Plinius Cæcilius Secundus. Born in A.D. 62, he was nephew and adopted son of Pliny the Elder, and in A.D. 80 began to practise as a pleader in the courts. He became in turn senator, military tribune, quaestor, tribune and praetor. Trajan made him consul and later governor of Bithynia. He wrote a panegyric on the Emperor Trajan and also ten books of *Letters*, one containing his official correspondence with Trajan. He died about A.D. 113.

Pliocene Geologists' name for the uppermost formations of the Tertiary system of sedimentary rocks, resting on the Miocene, and succeeded by the Pleistocene (q.v.). Most developed in the Mediterranean region and adjacent land northward, they occur in Britain mainly in the Coralline, Red, Norwich, Chillesford and Weybourne Crags and the Cromer Forest-bed.

Plotinus Founder of the Neo-Platonic School of Philosophy. He was born in Egypt, probably of Roman descent, about the year A.D. 203, and studied Indian and Persian philosophy in the East. His theories are Platonic in their origin but they suggest (in contrast to those of Plato himself) rather a way of mystical escape from the concrete world, than a fulfilment of what is best in it. He died A.D. 270.

Plough Agricultural implement used for turning over the soil, thereby loosening and pulverising it, and exposing the new surface to the air in preparation for

sowing seed. It is one of the oldest implements used for tillage, the earliest forms being of wood and simple in character. The modern plough consists of a beam to which is attached a coulter or iron knife blade for cutting the soil, a ploughshare with sharp point and projecting edge, a mould-board for raising and turning over the soil, and handles or stilt. The hand or animal-driven plough is supplemented now by the steam and oil-tractor ploughs for large areas.

Plover Widely-distributed family of wading birds. British species include the golden plover, 11 in. long, with its blotched pear-shaped eggs, 2 in. long, laid four in a nest. The Kentish, 6½ in. long, and ringed, 7½ in. long, also come to breed. The grey plover, 12 in. long, breeding in Siberia, is a common winter visitor in East Anglia. See LARWING, OYSTER-CATCHER.

Plum Fruit of the cultivated plum-tree. Derived from our more species of *Prunus*, of the rose order, the main European varieties originated from the wild plum *P. domestica*, including the victoria, magnum bonum and greengage. A Japanese species furnished not only Japanese and Californian but also S. African varieties, which withstand transportation to London better than the European stock. N. American species have also influenced the cultivated strains, which are grown as standard trees in orchards or trained to walls. See DAMSON, GREENGAGE, PRUNE.

Plumbago One of the alternative names for graphite, a form of impure carbon occurring as a soft black mineral and used for making pencils, polishes, lubricants, etc.

Plumber One who works in lead, especially in connection with fittings in buildings for the gas and water supply and also sanitary and sewage work. Usually plumbing is associated with general sanitary and domestic engineering, including the laying of lead roofing and gutters, the fitting of ventilating appliances, baths and bath heating apparatus, water softening plant, etc. Instruction in the various branches is given at technical classes. 'The Plumbers' Company is one of the smaller livery companies of the city of London.

Plumer Herbert Charles Onslow, 1st Viscount. British field marshal. Born Mar. 13, 1857, he joined the army in 1876, saw service in the Sudan and S. Africa, and from 1902-14 held various posts, becoming Quartermaster-General and member of the Army Council. In 1916 he was given command of the 5th Army Corps, and, later, the 2nd Army. In Nov. 1917 he went to Italy in command of the British forces sent to that field, returning to the western front and the 2nd Army again after five months. From 1919-25 he was Governor of Malta, and from 1925-1928 High Commissioner for Transjordan, retiring in Aug. Knighted, 1906, he was made a field marshal and a peer in 1919, taking the title of Baron Plumer of Messines. In 1929 he was made a viscount. He died July 16, 1932.

Plumstead District of London, 10½ m. from Charing Cross (S. Ry.). It forms part of the borough of Woolwich, Kent. Pop. 25,800.

Plunkett Sir Horace Curzon. Irish statesman. Youngest son of 16th Baron Dunsany, he was born Oct. 24,

1864. He represented Co. Dublin S. in Parliament, 1892-1900, founded the Irish Agricultural Organisation Society and established the Agricultural Co-operative Movement. From 1899-1907 he was Vice-President of the Dept. of Agriculture for Ireland. In 1917 he was chosen President of the Irish Convention. He died Mar. 26, 1932.

Plural Voting System allowing a person to cast more than one vote in an election, e.g., in virtue of different qualifications, residential and business. For parliamentary elections in Gt. Britain a person may not have more than two votes, and these must be given in two constituencies.

Plutarch Greek biographer. He was born about A.D. 48, at Chaeronea in Boeotia, and after travels in Greece and Egypt opened a school at Rome. He is notable for his parallel biographies of eminent Greeks and Romans. Disposed in pairs, the characters of the subjects being compared, this collection has great historical value. His other writings are grouped under the title *Opera Moralia*. He died c. 122 A.D.

Pluto Greek God of the lower regions. Greek being Hades. Brother of Jupiter and Neptune, he was the ruler of the infernal regions, and had dominion over the products of the earth. He carried off Proserpine (Persephone) and made her his queen.

The discovery of a new planet, later named Pluto, was announced by the Lowell Observatory, Flagstaff, Arizona, in March, 1930.

Plymouth City and seaport of Devon. On Plymouth Sound, at the mouth of the River Plym, it is 247 m. from London on the G.W. and S. Ry's. A port of departure for shipping going to America, Australia, S. Africa and the East. Plymouth is an important mail station and the waters of Cattewater, Mill Bay, Sutton Pool and the Hamoaze accommodate many vessels. Here too is an extensive fishing industry. On Plymouth Hoe, overlooking the Sound are the Citadel, a statue of Drake, and a monument to Smeaton, actually part of the old Eddystone lighthouse, which he built. Pop. (1931) 208,166.

The city, which includes the towns of Stonehouse and Devonport (*q.v.*), gives its name to an earldom. Robert Grey Windsor-Clive (d. 1923) was made earl in 1905, but the title was borne from 1680-1843 by another family, that of Hickman-Windsor. The present earl, Ivor Miles Windsor-Clive, was born in 1889. His heir bears the title Viscount Windsor.

Plymouth China is a hard paste biscuit ware, and was made by Wm. Cookworthy (1768-74).

Plymouth Seaport and town of Massachusetts, U.S.A. It is 37 m. by rail S.E. of Boston, on a branch of Massachusetts Bay. Here the Pilgrim Fathers landed from the *Mayflower* in 1620. The landing place is marked by a granite rock over which is a granite canopy. A monument to the pilgrims is on a hill above. Pop. 13,000.

Plymouth Brethren Evangelical Christian community formed by John Nelson Darby at Plymouth in 1830. Abandoning an Anglican curacy, he associated in Dublin with certain persons calling themselves "Brethren," who met regularly for public worship. Removing to Plymouth he established there and in other places, including Switzerland, similar self-contained communities, who commemorate the

Lord's Supper every Sunday, while rejecting all ecclesiastical organisation and ordained ministry. They number about 80,000 in Great Britain, besides others in Europe, Canada and U.S.A.

Plympton Market town of Devon. It is 5 m. from Plymouth, on the G.W. Ry., and stands on the River Plym. Sir Joshua Reynolds was born here.

Plynlymmon Welsh mountain. It is 10 m. W. of Llanidloes, on the borders of Montgomeryshire and Cardiganshire, and is 2465 ft. in height. Here are the sources of the Wye and Severn, and of the Llyfnant and the Rhedol.

Plywood Name given to thin boards made of layers of wood, usually three in number, and cemented or glued together under pressure, the grain of the middle layer being placed at right angles to that of the outer layers. Plywood is light and has the advantage of being less liable to warp or split than ordinary boards. It is used in aeroplane construction and box manufacture, also for furniture and as panels for walls and ceilings.

Pneumatic Appliances

Type of appliances in which the power is supplied by compressed air. They are used for various percussive purposes such as hammers and drills, also for working hoists, and in modern paint work as a spraying device. Pneumatic rock drills are used in mining operations and are provided with devices for turning the drill around as it works and for adapting the blow to the increasing depth of the hole. Painting of large surfaces, especially with cellulose paints, is efficiently achieved with a pneumatic apparatus, delivering the paint in the form of an evenly distributed fine spray.

Pneumonia Inflammation of the substance of the lung. Three forms occur. Acute lobar or croupous pneumonia, commonly called congestion of the lungs, is usually caused by a specific micro-organism, *Diplococcus pneumoniae*. Congestion of the blood-vessels is followed by a solidified condition resembling liver tissue, called red and grey hepatization, simulating red and grey granite respectively. Generally the air-vesicles, by eliminating their morbid contents, quickly resume their normal action. Lobular or broncho-pneumonia, diffused through the smaller tubes and vesicles, sometimes chronic, is fatal to the young and aged. Chronic interstitial pneumonia or cirrhosis of the lung closely resembles the symptoms of tuberculosis. See PHTHISIS.

Po Longest river in Italy. It rises in Monte Vige, as a mountain torrent, and flows into the Adriatic, 300 m. away. It receives all the waters flowing northwards from the Apennines and southwards from the Alps and Lake Garda.

Pocahontas Daughter of an American Indian chief, Powhatan, who was the ruler of the tribes of Virginia. Born about 1595, she is said to have interceded for the life of Capt. John Smith, when he was captured by her father. Later she was taken as a hostage and brought to Jamestown. She became a Christian and married John Rolfe, a settler. She came to England in 1616, and died at Gravesend, 1617.

Pocklington Urban district and market town of Yorkshire (E.R.). It is 13 m. from York, on the

L.N.E. Rly. The industries include the making of agricultural implements, milling and brewing. Pop. (1931) 2640.

Pod Dry seed-vessel developed from a single carpel which, when the seeds ripen, usually splits along both edges. Technically a legume, it characterises leguminous plants, e.g., pea, furze. The name popularly denotes also the elongated siliqua or shortened silicle developed from two united carpels with transverse septum characterising cruciferous plants, e.g., cabbage, honesty.

Poe Edgar Allan. American author and poet. He was born at Boston on Jan. 19, 1809, and was adopted at an early age by John Allan. He published *Tamerlane* (poems) in 1827. He wrote for Baltimore journals and later became editor of the *Southern Literary Messenger*, going to live in Richmond. Other volumes of poems appeared in 1829 and 1831. With *The MS. Found in a Bottle* (1833) he won a prize given by the Baltimore *Saturday Visitor*. Poe excelled in creating an atmosphere of mystery and horror, as in such tales as *The Pit and the Pendulum*, *The Masque of the Red Death*, *The Murders in the Rue Morgue*, and *The Fall of the House of Usher*. Among his best-known poems are *The Raven*, *The Bells*, and *Annabel Lee*. He died on Oct. 7, 1849.

Poet Laureate Office of crowned poet, or poet at the Court. The Greeks and Romans used to crown poets with laurel, and Petrarch was thus crowned at Rome in 1341. Though Chaucer and later Skelton styled themselves poet laureate the office really commenced with the giving of a pension of 100 marks to Ben Jonson by James I. Charles I. made the pension £100 and added a tierce of Canary. When Southey was made laureate a money payment was made in lieu of the wine. In modern times the laureateship has been held by Wordsworth, Tennyson, Robert Bridges and John Masefield (1930).

Poetry Form of literary expression, clothed in emotional, rhythmical and often symbolic language. Rhyme is not essential, for blank verse has been the vehicle of much of the grandest poetry in all languages. Poetic form varies with fashion. It may be alliteration, assonance, rhymed couplets, or the irregular type known as *vers libre*, but all true poetry should appeal both to the mind and the ear. Rules governing metre, accent and similar details come under the heading of prosody. See **LYRIC**; **ODE**.

Pogrom Term used in English newspaper reports in describing attacks upon the Jews in Russia instigated by the authorities (1905-06). It has since been applied to any similar organised attacks on Jewish communities. It is derived from a Russian word meaning "devastation."

Poilu Name given to a French private soldier. The word means "hairy" and, originally applied to a recruit, was used commonly during the Great War for soldiers in the trenches, when many were obliged to let their beards grow. The term thus came into general use to denote a common soldier in the French army.

Poincaré Raymond Nicolas Landry. French statesman. Born Aug. 20, 1860, he became a barrister. He entered the Chamber of Deputies, 1887, was Finance Minister, 1894-95 and 1906, and became Premier and Minister of Foreign Affairs in 1912, resigning on his election as President of

the Republic, Jan. 17, 1913. His term of office ended in 1920. In Jan., 1922, he became Premier in succession to Briand, holding this post and also that of Foreign Minister until the election of May, 1924, when he was defeated and resigned. He formed a ministry again in 1926, and was also Finance Minister at the time. He brought about the stabilisation of the franc (June, 1928). Poincaré resigned the premiership, July, 1929.

Point In mediaeval music, a dot affecting note-duration. Known as points of augmentation, division, perfection and alteration, points fulfilled the functions of modern dots and barlines. Point also denoted a mediaeval note, and also a place of dramatic, or contrapuntal interest in a composition.

An organ-point is a succession of harmonies progressing over a pedal bass-note; also the chord introducing a concerto's *cadenza*.

Pointer Breed of sporting dog. Introduced from 17th-century Spain, and improved by foxhound and greyhound crossing, the English pointer is close-haired, 24 in. high, and usually parti-coloured such as liver-and-white, but sometimes all liver-coloured or black. It hunts by body-accent, and when it scents game stands stiffly with muzzle and tail outstretched, usually with one foot raised.

Point-to-Point Type of steeplechase for hunters, usually over a course of three or four miles. Originally these races were run over a straight course, i.e., from one point to another across country.

Poison Substance which tends to destroy life or impair life when introduced into the body either through the mouth and stomach or by being absorbed into the blood. Poisons may be classified as corrosive, irritant and neurotic, the first-named being the mineral acids, alkalies, and salts such as corrosive sublimate. The irritant poisons cause inflammation of the parts and include metallic substances such as arsenic, also various animal and vegetable poisons. Neurotic poisons affect the nervous system and include the narcotics such as morphia, also strychnine, belladonna, alcohol, etc. Many of these poisons are scheduled under the Poisons Acts and their sale regulated in various ways.

TREATMENT FOR POISONING. In all cases of poisoning immediate action is absolutely necessary, and is in many cases the only hope of saving life. A doctor must be called at once, but until he comes the amateur can follow certain broad lines of conduct. If the poisoning is from food, or from poisonous plants, or from prussic acid, encourage the patient to be sick. A tablespoonful of mustard or 2 tablespoonfuls of salt in a glass of warm water is a good emetic. In the case of prussic acid, give a very strong mustard emetic at once. After vomiting, give strong tea or black coffee.

If the lips and mouth of the patient are stained or burned (denoting a corrosive poison) it is harmful to give an emetic. Strong tea is the safest antidote.

If sleepy always keep the patient awake, if necessary, by walking him about or slapping his face and chest. If he has collapsed he must be kept warm, and give him a teaspoonful of sal volatile in a little water if he can swallow. If breathing ceases, artificial respiration must be adopted (see under **DROWNING**).

If the throat is swollen so that the patient cannot breathe, apply hot cloths, and as soon as he can swallow give drinks of cold tea or coffee.

If the poison is known to be an acid such as nitric, oxalic, or sulphuric, salts of lemon, carbolic, etc., rinse the mouth out with an alkali and give drinks of it. Lime-water or magnesia is good, or, failing these, chalk and water, whitening and water, or even plaster from the ceiling.

If the poison is an alkali such as ammonia or caustic soda, use an acid preparation (vinegar or lemon juice and water, equal parts).

Poitiers Town of W. France. Founded in pre-Roman times, it fell to the Franks in 507, when Clovis defeated the Visigoths under Alaric II. Near here Charles Martel defeated the Mohammedans in 732. After the Battle of Poitiers in 1356 (*see below*) the town became an English possession till retaken in 1373. The town has some Roman remains, a fine cathedral, containing some stained glass of the 12th and 13th centuries, the church of St. Jean, the oldest Christian monument in the country, and other very ancient churches. It has a university. Its trade, apart from wine, is mainly agricultural, and its industries include printing and the manufacture of brushes, hosiery, etc.

Poitiers Battle of. Fought Sept. 19, 1356, between Edward the Black Prince and the French under King John II. The English forces numbered about 8000 and the French 15,000. The battle resulted in a decisive victory for the Black Prince, the French King being taken prisoner and brought captive to England.

Poker Card game played for money stakes. Introduced into America from France via New Orleans about 1830, it became the now prevalent draw-poker, using 52 cards, about 1860. Each player, 2 to 7, received five cards; the game goes to the best hand.

Poker-Work Form of decorative art, effected by burning a design on wood, leather, velvet and other materials with a heated metallic point. First accomplished with a red-hot "poker," *e.g.*, the pyrographic drawings on lime-tree and other woods by John Cranch (1751-1823), it is now done with hollow needles heated in spirit lamps.

Pola Town and seaport of Italy. It is on the peninsula of Istria, 56 m. S. of Trieste. There are two harbours, naval and commercial. Prior to the fall of the empire, Pola was the chief naval station of Austria-Hungary, and an Austrian fleet was blockaded here by the Italians, who occupied the town late in 1918. Together with Istria, it became a part of Italy by the Treaty of Versailles (1919). There is a cathedral (15th century), a castle (Venetian), and the Roman Amphitheatre and Temple of Augustus. Pop. 54,600.

Poland Republic of Eastern Europe, created under the Treaty of Versailles, 1919. It has an area of about 150,000 sq. m. and a population of 31,000,000. Bounded by the Baltic, East Prussia, Lithuania and Latvia on the N., White Russia and Ukraine on the E., it joins Rumania and Czechoslovakia on the S. and Germany on the W. It has a port at Gdynia and also uses Memel and Danzig. The capital is Warsaw. There are extensive forests, and important mineral deposits, including coal, petroleum, iron and zinc. There are large salt mines, and potash is also found.

HISTORY. Until 1772 Poland was an independent state, dated back to the 6th century

by tradition, and with a recorded history commencing with Miecyslaus I. (964). The State had a turbulent history, being joined at different times with Hungary and Lithuania. Invasions by Wallachians, Turks and Russians occurred, and Charles Augustus of Sweden seized Poland in 1655. Sobieski (elected king 1674) is famous for his relief of Vienna, besieged by the Turks (1683). In the 18th century the State decayed. A confederation of patriots made a stand against Russia's encroachments in 1768. Four years later came the first partition, territory being annexed by Austria, Russia and Prussia, and later divisions (1793-95) took the remaining parts of Poland, Stanislaus, the last king, abdicating at Grodno in 1795. Napoleon set up a short-lived duchy of Warsaw, and there was another division of territory in 1814.

During the Great War, Poland was seized by Austria-German forces and independence proclaimed in 1918. Pilsudski, who had earlier invaded Russia with a Polish legion, was a member of the Council of State. A Republic was proclaimed at Warsaw in 1918, and its independence confirmed by the Peace Treaty of 1919. Pilsudski became first president (resigning 1922) and Paderewski premier. Threatened by Russian invasion in 1921, the Soviet armies were repulsed and a favourable peace secured. Poland's constitution is based on adult franchise. The legislature comprises an Upper House or Senate, and a Diet.

Polarisation of Light. Condition of radiant energy, most noticeable in light, in which some of its properties are different in different directions. Light may be polarised by reflection, at an angle which differs for different substances, or transmission, as through most crystals. Light thus treated will be reflected or transmitted most easily a second time for certain positions of the reflector or crystal, and not at all for positions at right angles to these. The plane of polarisation is rotated by passage of the polarised light through quartz, and by a magnetic field, this effect being also used to distinguish between certain sugars in solution. Polarisation in a voltaic cell denotes the collection of gas on the surface of the negative electrode, diminishing the supply of current.

Polariscope Optical instrument used for showing the effect of various substances upon polarised light, and generally used as an attachment to the microscope for the study of the characters of thin sections of rocks and minerals. Its essential parts are the analyser and polariser, each consisting of a prism of Iceland spar bisected longitudinally in a plane through its obtuse angles and cemented together to form a "Nicol prism." The analyser is inserted above the object glass and the polariser beneath the microscope stage.

Polar Regions Term applied to those regions which surround the geographical poles and lie within the Arctic and Antarctic circles, 23½° from the poles. In these areas sunlight or darkness extend over 24 hours at a time. They are characterised by extreme cold and the prevalence of ice over both sea and land. The northern ice cap forms a plain at sea level over the Arctic Ocean except over the land surface. The southern ice cap covers an elevated land area. *See* ANTARCTIC; ARCTIC.

Polé 'In geography a term applied to the ends of the earth's axis,

the surface around the North Pole appearing to an imaginary observer above it to rotate anti-clockwise, while at the South Pole the direction is clockwise. The magnetic poles are the ends of the earth's axis regarded as a great magnet, and lie near the poles of rotation.

Pole In engineering a term applied to the ends of a magnet, these ends having the property of polarity or two-endedness. One of these, the North Pole, is north-seeking, while the other, the South Pole, is south-seeking, and the law of magnetic attraction is that unlike poles attract, like poles repel. See MAGNETIC POLES.

Pole Reginald. English Cardinal and Archbishop of Canterbury. Born in 1500 at Stourton Castle, Staffs., he went to Oxford, and after entering the Church, spent some years in Italy. In England again, he opposed Henry VIII.'s divorce from Catherine of Aragon, and in 1532 left the country, going to Padua. On the accession of Mary he was appointed papal legate, coming to England in 1554. Pole was made Archbishop of Canterbury in 1556. In 1557 he was recalled and charged with heresy, but died Nov. 17, 1558.

Polecat Carnivorous mammal of the weasel family (*Putorius putorius* or *P. foetidus*), native of Europe and found in Great Britain. A pouch under the tail contains a fetid-smelling yellowish substance. It is 18 in. long, with 5-in. bushy tail, sharp-nosed, with small, rounded ears and dark-brown pelage, white-marked round the head. It usually breeds in rabbit-burrows. Furriers call the fur fitch or fitchet.

Pole Star Nearest conspicuous star to the N. pole in the sky. It is the 2nd magnitude star *alpha* in the "Little Bear" constellation. The hindmost wheels of Charles's Wain, the *alpha* and *beta* of the "Great Bear," are the pointers; a line through them prolonged $4\frac{1}{2}$ times northwards indicates its whereabouts, $1\frac{1}{2}^\circ$ from the true pole.

Polesworth Village of Warwickshire, on the L.M.S. Ry. It is 4 m. from Tamworth, on the River Anker. It is the centre of a colliery district, and there are also quarries. Pop. 6280.

Police Non-military force appointed to maintain law and order. In England, before the passing of Peel's Police Act of 1829, there was no organised body. Watchmen in the larger towns, and parish constables in rural districts, were the sole persons charged with the duty of preventing crime and keeping order. Peel's measure applied only to the metropolitan area, but eventually similar bodies were formed in the towns and counties, and an Act of 1872 restricted the appointment of parish constables by the justices.

The Metropolitan Police are controlled by the Home Secretary, and he has also certain powers over the borough and county police, which are otherwise under the control of their respective councils. His department inspects them and exchequer grants are made towards the cost. In 1932 it was decided to take steps to amalgamate some of the smaller police forces with the larger ones. The City of London Police is governed by the Court of Common Council.

Police Court Court of summary jurisdiction. In London they are presided over by a stipendiary (paid) magistrate, as in certain other towns. Generally,

however, it is Justices of the Peace (unpaid) who act as judges. Justices are appointed by the crown on the advice of the Lord Chancellor, stipendiaries on the petition of a municipal borough council to the Home Secretary. See MAGISTRATE.

Political Economy Science of the production and distribution of wealth. See ECONOMICS.

Polka Round dance of Bohemian origin. Introduced about 1840 it had a great vogue for some fifty or sixty years. The music is in two-four time.

Poll Term denoting the voting or taking of votes at an election. It is applied also to the register of those entitled to vote. The place where the votes are recorded is called a polling booth. At company meetings (e.g., for the election of directors) a poll is taken, the shareholders having votes proportional to the number of shares held. The word is old English for head. See POLL TAX.

Pollack Soft-finned marine food-fish of the cod genus (*Gadus pollachius*). Akin to the cod-fish but without barbel, greenish with yellow markings, it is taken in the Channel and on Scottish and Irish coasts up to 25 lb. It is found throughout the N. Atlantic.

Pollen Fine dust, generally yellowish, produced in the anthers of flowering plants. When mature it comprises separate grains of definite size and shape, usually single-celled, and often ornamented. Each grain contains a male element whose union with the female element in an ovule originates the embryo constituting the seed.

Pollination Process of conveying pollen-grains to the stigma of a flower, where by penetrating to the ovules in the ovary they effect their fertilisation. Self-fertilisation occurs when a flower's pollen reaches its own stigma. Cross-fertilisation, essential for one-sexed flowers, occurs when pollen reaches the stigma of another flower of the same plant or the flower of another plant of the same species. The transporting agency is usually wind or an insect; humming-birds and snails also serve.

Pollokshaws District of Glasgow, with which it was incorporated in 1912. It is an industrial district with iron foundries, cotton mills, etc.

Poll Tax Capitation tax levied on every head. In ancient Athens a poll tax was paid by resident aliens and others. The English Parliament of 1380, held at Northampton, imposed a poll tax, levied on all persons above the age of 15. It was the collection of this which led to Wat Tyler's rebellion of 1381. Charles II. imposed a capitation tax, all subjects being assessed by rank.

Pollux In Greek mythology the twin brother of Castor, and a son of Zeus. He was skilled in boxing. The name is given to a star in the constellation of the Heavenly Twins.

Polo Ball game played on horseback, long-handled mallets being used. Of Persian origin the game has long been played in Eastern countries. In India it became popular among English officers and residents, and was brought to England by the former, a club being formed in London, 1872. The game is played on turf, the ground being 300 yd. by 180 yd. The goals are 250 yd. apart, the posts (24 ft. apart) at least 10 ft. high. The ball

must not exceed 3½ in. in diameter and 5½ oz. in weight. Trained ponies are used. The governing body is the Hurlingham Club.

Polo Marco. Italian traveller. He was born at Venice, about 1254. His father was a merchant, and in 1271 Marco accompanied him on a journey to the court of Kublai, and reached Shang-tu in 1275. Marco was given a governorship by the Khan and sent on missions to India and China. In 1298 Marco was taken prisoner by the Genoese. During a captivity lasting until 1299 he compiled an account of his travels. He became a member of the Grand Council of Venice, and died Jan 9, 1324.

Polonaise (1) Stately ceremonial dance, usually in 3/4 time, dating from Henry of Anjou's election to the Polish throne in 1573. Its rhythm was employed by Chopin and others. (2) Light-skirted bodice looped up at the sides, based upon Polish national costume, and worn at various periods after 1770.

Polperro Village of Cornwall, on the S. coast, 13 m. from Bodmin. It is a centre of the pilchard fishery.

Poltergeist German word, "racketing spirit," denoting the supposed agent of inexplicable noises in or about a house, e.g., movement of furniture and breakages of crockery. Widely distributed in time and space, often attributed to spiritistic agency, such phenomena are sometimes due to obvious trickery, sometimes elude all intelligible explanation. The lack of adequate motive, and the frequent association with the occurrences of a person of abnormal mental powers, puzzle inquirers. See COCK-LANE.

Polyandry Plurality of husbands. Observable in mountainous, insular or desert regions, this social institution may occur in a fraternal form, a woman marrying two or more brothers, as among the Indian Todas and the agricultural population of Tibet.

Polyanthus Hardy perennial herb of the primrose order. Bearing an umbel of numerous flowers on a leafless stem, it is thought to have arisen from the crossing of the common primrose and the cowslip. Gardeners produce innumerable strains with handsome tints, red, orange, bronze, blue and white; some are gold-laced. See NARCISSUS.

Polygamy Term properly denoting plurality of consorts, in contrast with monogamy. It is commonly synonymous with polygyny, "many women," whose antithesis is polyandry, "many husbands." In Christian communities if one party contracts more than one marriage the first only is valid. Polygamy is a recognised social institution in negro Africa, Australia and Melanesia. It was regulated among the early Semites, passed into Aryan India and was retained by Mohammedanism. Mormon polygamy ceased in 1890.

Polygon Term used in plane geometry for a plane figure having more than four sides. A polygon is termed regular when it is both equilateral and equilateral. Regular polygons are named according to the number of sides from five to twelve, as follows: pentagon, hexagon, heptagon, octagon, nonagon, decagon, undecagon and duodecagon.

Polyhedron Term used in solid geometry applied to a solid body which is bounded by a number of planes

or faces. Those polyhedra in which the planes are regular, equal and similar are known as the five regular or Platonic solids, and comprise the tetrahedron, cube, octahedron, dodecahedron and icosahedron.

Polynesia Division of Oceania. It extends from lat. 30° N. and S. of the equator, and is bounded E. and W. by long. 135°. It includes the more easterly islands, viz., Fiji, Samoa, Hawaiian and Marquesas Islands, and those of the Society, Tubuai, Phoenix, Tokelau, Hervey and Manahiki groups. The three first named are the most important.

The so-called Polynesians comprise the aborigines of this region. They are brown-skinned and well developed with an average height of 5 ft. 8 in.

Polyphemus In Greek legend one of the aborigines of the Cyclops, a son of Neptune. He is represented as a giant with a single eye. Odysseus and his comrades sought shelter in his cave, and some were eaten by the monster. Odysseus, however, gave him strong wine to drink, and when he fell into a deep sleep thereafter, put out his eye and fled.

Polyphony Musical combination of various strands of melody, each individually interesting. The polyphonic school of music reached its climax in the 16th century music of Palestrina and his contemporaries, of whom William Byrd was the chief exponent in England.

Polyporus Large widely-distributed genus of fungi. Some of them form on living trees or timber hard and woody brackets, more or less semi-circular; some furnish native dresses, bread and tinder. The purging agaric, *P. officinalis*, formerly used in English pharmacy, is still used among N. American Indians as a purgative and styptic.

Polypus Stalked tumour attached to the surface of a mucous membrane. Usually pear-shaped, it may be gelatinous, fibrous, vesicular or malignant, occurring in the nostrils, outer ears, larynx, rectum, bladder or uterus. If accessible from without it is readily removable by being twisted off.

Polytechnic School for affording practical training in arts and sciences. The first London institution of this kind, the Royal Polytechnic Institute, was opened in 1839, and continued, with a break of one year, 1859-60, until 1882. Its successor, the Regent St. Polytechnic, was opened in 1882 by Quintin Hogg (died. 1903). There are other London Polytechnics at Clerkenwell, Chelsea, Woolwich, Battersea and Lewisham.

Polytheism Doctrine of a plurality of divine beings superior to man taking part in the government of the world. Conceived as possessing animal, human or superhuman forms and attributes, they represent a system of worship observable in ancient civilisations and in modern India. See MONOTHEISM.

Pomegranate Tree of the loosestrife order (*Punica granatum*). It has long been naturalised in the Mediterranean and other sub-tropical regions. The flowers, usually scarlet, form an apple-like fruit containing many pulp-covered seeds, with a golden-red rind containing an astringent principle used in pharmacy, dyeing and tanning.

Pomerania Province of Prussia, formerly a duchy. It has an area of 11,800 sq. m. and is bounded by the

shores of the Baltic, and landward by the territories of Poland and Mecklenburg-Schwerin. The islands of Rügen, Usedom and Wollin, off the coast, belong to Pomerania. The district is divided into the governments of Stettin, Stralsund and Koslin. The principal river is the Oder, with its tributaries, and there are many small lakes. Pop. 1,878,781.

Pomeranian Dog Bred of dog. Called in Germany the Spitz, akin to the Eskimo and other Arctic breeds, it is strongly built, scaling 20 lb. and more, long-haired, with sharply-pointed muzzle, upright and pointed ears and thick, bushy, back-curved tail. In Britain it usually occurs in a dwarfed form as the "pom," weighing approximately 6 lb.

Pomona (or Mainland). Island of the Orkneys, Scotland, the largest of the group. It has an area of 150 sq. m. The two inlets of Scapa Flow and Kirkwall Bay divide the island into a larger (W.) and a smaller (E.) portion, the latter much indented. The W. part is chiefly moorland. There are two towns, Stromness and Kirkwall. Pop. 14,900.

Pompadour Jeanne Antoinette Poisson, Marquise de. Favourite of Louis XV. of France. Born in Paris on Dec. 29, 1721, Louis met her in 1745, and made her his mistress, installing her at Versailles. She had great influence over the king, and brought about the Alliance with Austria in the Seven Years' War because of her dislike for Frederick the Great. She had considerable talents, and was the centre of a circle including such writers and artists as Voltaire and Greuze. She died on April 15, 1764.

Pompeii Ancient ruined city of Italy. It is at the foot of Mt. Vesuvius, 13 m. S.E. of Naples. In A.D. 63 a great part of the city was destroyed by an earthquake, and in A.D. 79 Pompeii was buried by a great eruption of the volcano. During the intervening centuries the covering of ashes preserved the city, with its temples, streets, market places, baths and private houses. The excavations of the ruins, which were begun in 1748, have greatly enriched our knowledge of ancient Roman life.

Pompey Gnaeus. Roman triumvir. He was born in 106 B.C., distinguished himself as a general before his 25th birthday and was consul in 70. In 67 he swept the pirates from the Mediterranean within 40 days, and his subsequent eastern campaign (66-63) resulted in a great extension of Roman sovereignty, but at its close the opposition of the Senate caused him to join the first Triumvirate with Caesar and Crassus. As Caesar's influence increased, Pompey's declined, and when the inevitable civil war broke out, Pompey was decisively defeated at Pharsalus (48) and afterwards murdered in Egypt.

Pondicherry City and seaport on the Coromandel coast, India, belonging to France. It is 100 m. S. of Madras, and is the capital of French East India. First colonised in 1674, the city was captured by Dutch and English, returning to France again in 1815. The area of the district is 115 sq. m. Pop. 47,600.

Pondweed Genus of waterweeds of the grasswack order. (*Potamogeton*). They are aquatic herbs with leaves submerged and translucent or floating

and opaque. Of the numerous British species some have leaves 10 in. across, others are threadlike. The allied sweet-scented Cape pondweed, *Oponogon*, flowers freely during the winter in Great Britain.

Pontefract Borough and market town of Yorkshire (W.R.). It is 13 m. S.E. of Leeds and stands near the junction of the Aire and Calder, on the L.N.E. and L.M.S. Ryds. There is a ruined castle, in which Richard II. was murdered.

Pomfret cakes (liquorice) are made here. Brewing, iron founding, and tanning are the staple industries, and corn milling is carried on. Pop. (1931) 19,053.

Pontypool Urban district and market town of Monmouthshire, on the G.W. Ry. It is 8 m. from Newport, with which town it is connected by a canal. Coal mining is an extensive industry, the town being on the S. Wales coal measures. Iron and tinplate are manufactured. Pop. (1931) 6788.

Pontypridd Urban district and market town of Glamorganshire. It is on the River Taff, 12 m. from Cardiff, on the G.W. Ry. There are coal and iron mines, and brass and iron foundries. Tin plate is also manufactured. Pop. (1931) 42,737.

Pony Small horse. Technically those ranging from 13 hands high downwards are called ponies, those from 13 to 13'3 hands high gallows, and those above them horses. In popular usage the dividing line between ponies and horses is 14 hands; on the N. American prairies hardy mustangs, broken in by Indians, are called ponies. The rough-coated ponies bred in N.W. Europe, with luxuriant mane and forelock, are of the domesticated Celtic stock which drew the war chariots of ancient Britain, and have survived in Iceland, Shetland, Wales, and the New Forest.

Poodle Breed of dog. In France and Germany it is a sporting dog. Learning tricks readily, it has become a circus dog. Its coat, corded or curly, is clipped peculiarly on the hindquarters. Toy poodles, scaling 4-5 lb., are in demand.

Poole Borough, seaport and market town of Dorset. It is on a peninsula in Poole Harbour, 18 m. E. of Dorchester and 5 m. from Bournemouth, on the S. Ry. Pottery is made from clay quarried locally, and other industries include fishing and the manufacture of farm implements. There are oyster beds. In the harbour, which is 7 m. long, is Brankses Island. Pop. (1931) 57,258.

Poona Town of Bombay, India. The town is at the junction of the rivers Mula and Muta, 120 m. from Bombay. Pop. 214,800.

Poor Laws Local provision in Gt. Britain for the indigent dates from an enactment of Elizabeth, 1601, which authorised the building of poor-houses, appointment of overseers, and the raising of a rate by a tax on householders. An important Act of 1834 reformed abuses and instituted poor-law commissioners. A Poor-Law Board was appointed in 1849. The duties were taken over in 1871 by local government boards, and in 1919 the Ministry of Health came into existence, and took over the administration of the poor laws. Another change came about in 1930, when boards of guardians were abolished and their functions taken over by the county and county borough councils.

Pope The Head of the Roman Catholic Church. The title is derived from a word meaning father, and was used generally for bishops until 1073, when it became restricted to bishops of Rome. A new pope is elected on the death of the reigning pontiff, by the College of Cardinals. He has supreme authority in matters of faith, and his infallibility when speaking, *ex cathedra*, on matters of faith and morals was declared by a Vatican council in 1870. The same year witnessed the loss of the temporal power, the papal territories being absorbed in the Kingdom of Italy. In 1929 temporal power over a small territory (the Vatican State) was regained when Italy recognised the pontiff's sovereignty. See PAPACY, PIUS XI., VATICAN.

Pope Alexander. Poet and satirist. Born in London, May 21, 1688, he early showed poetic talent. His *Essay on Criticism*, 1711, a didactic poem, and *The Rape of the Lock*, satirising contemporary society, published a year later, brought him fame at the early age of 24, and brought the poet into contact with other literary men of the time, including Addison and Swift. Pope translated Homer, which was completed in 1725. The *Essay on Man*, 1733, which has been called Pope's finest work, deals with the philosophy of Bolingbroke (1678-1751). Pope died at Twickenham, May 30, 1744.

Poperinghe Town of Belgium. In the midst of a hop-growing district, it stands on a tributary of the Yser, 6 m. W. of Ypres. It was taken by the Germans soon after the outbreak of the Great War, and occupied by the Allies in Oct. 1914. Bombarded at various times, it suffered during the German advance in April, 1918. The Church Institute, known as "Too H" (Talbot House), was established here in 1915.

Poplar Genus of trees of the willow order (*Populus*). Their alternate deciduous long-stalked broadish leaves are usually preceded by the male and female flowers in separate catkins. The rapid-growing soft wood timber is unimportant. Black, white, grey Lombardy and aspen, besides American balsam, poplar and cottonwood, are in cultivation. See LOMBARDY POPLAR.

Poplar Metropolitan borough of London, on the north side of the Thames, served by the L.N.E. Rly. It is composed of the parishes of Poplar, Bromley and Bow, and contains the Isle of Dogs, together with the E. and W. India and Millwall docks. From the Island Gardens (3 acres) the tunnel to Greenwich starts. It sends two members to Parliament. Pop. (1931) 155,083.

Poplin Rep-like fabric with silk warp and worsted weft, brought to England by 17th-century French refugees, and long specially associated with Ireland.

Popocatepetl Active volcano of Mexico (17,520 ft.). It is about 45 m. S.E. of Mexico City, between the Valleys of Mexico and Puebla. The name is Aztec, and means "smoking mountain." There was a small eruption in 1802.

Poppy Large genus of herbs typical of the poppy order (*Papaver*). Their milky sap, with narcotic properties, is absent from the seeds, which yield an edible oil. The most important economically is the annual opium poppy, naturalised in S.E. England. The corn-poppy has yielded under cultivation double-flowered forms such as the carnation,

picotee and ranunculus poppy, besides the single-flowered white-centred Shirley strain. Perennials include the handsome Oriental, the Arctic and the Iceland poppy.

Population Term applied to the number of living human inhabitants of the world. Since this number varies from time to time, it is almost impossible to arrive at an accurate estimate of the world's population, but the adoption of a periodic census in most of the civilised countries enables statisticians to compute population with far more accuracy than before.

The census, however, is still hampered in countries like Africa and South America by the difficulty of collecting data concerning the inhabitants of the more remote regions. Furthermore, the causes which contribute to decline of population are often incalculable, such as wars, epidemics, sterility for various biological reasons, and to-day the increasing popularity of contraception.

The population of the whole world has been estimated at over 1,900,000,000, giving a density of over 33 per sq. m. Among independent political units, Barbados, in the West Indies, with about 952 inhabitants per sq. m., is the most densely populated. Of the continents, Europe has the greatest density, with Asia second. The other continents are comparatively sparsely populated.

Two types of region favour density of population. One is the moist, warm climate, where rice, the cheapest form of food, can be produced in large quantities, as in China and Japan. The other is in temperate climates, on the great coal and mineral fields, where industry attracts population away from the rural districts, as in Western Europe and U.S.A.

Numerically, the largest populations are found in China, India and Africa. The population of China has been put at over 433,000,000, but here, as in India and, especially, Africa, the difficulty of census-taking renders the figures somewhat doubtful.

As regards the sexes in Europe, females normally outnumber males, possibly because a man's life subjects him to greater strain and liability to accident. After a war this difference is very much accentuated. In U.S.A., on the other hand, males outnumber females, owing to the fact that males migrate to a new country in larger numbers than females. India, Egypt and Japan also show preponderance of males over females, due to the very high female death-rate.

Porcelain Fine pottery with a vitreous, translucent body and a transparent glaze. Of Chinese invention and often called China, it reached high perfection during the Ming Dynasty, and was imported into Europe, where its composition was discovered and imitated at Meissen, near Dresden, 1713. European porcelain comprises soft-paste, hard-paste and bone-porcelain. See CHINAWARE.

Portchester (Portchester). Village of Hampshire, served by the S. Rly., on Portsmouth Harbour. It was the site of a Roman station. For a long time Portchester was a naval station, but the sea receded and rendered the port useless. Here are remains of a Norman castle. Pop. 993.

Porcupine Widespread family of rodents. The common porcupine of S. Europe and N. Africa, *Hystrix cristata*, 27 in. long, has long, black-and-white

quills or spines along the back for defensive purposes. The short quills of some American species are used by N. American Indians for decorating buckskin garments and moccasins.

Porcupine Grass (1) *Spinifex*, a coarse grass of various species of *Triodia*, growing in inner Australia. The stiff, spiny leaves, 3-4 ft. high, cause much suffering to man and beast. (2) *Stipa spartea*, a grass abounding in some American prairies. The awns become fixed in sheep's wool, gradually penetrating the skin and causing death.

Pork Unoured flesh of swine as food. The flesh of the pig is forbidden to Jews and Mohammedans, and is regarded by them as unclean. Pork compares favourably with mutton and beef in its nutritive properties, though more difficult of digestion. Comparing a medium fat animal of all three kinds, the percentage composition in pork is—water, 55; dry matter, 45; in mutton—water, 57%; dry matter, 43; in beef—water, 54; dry matter, 46. The mineral content of pork—2.5%—compares with mutton 4.5 and beef, 5.5. The amount of fat in the three varieties of meat is 28%, 23.5%, and 22.5% respectively. In a fat pig the fat may be practically 50%, and the total dry matter, 61.5%. Pork takes about 1½ times as long as beef for digestion. See Pig.

Porlock Village of Somerset, 6 m. from Minehead. It was once an important seaport, though the sea has since receded and the coast is now a mile or so away. Porlock Hill, nearby, is a noted test hill for motorists. Pop. 970.

Porphyrites Igneous rocks comprising large crystals, sometimes more or less broken, embedded in a ground-mass of finer crystals. This is principally plagioclase, with augite, hornblende, biotite, etc., and larger crystals porphyritically developed. Abundant as dikes and intrusive sheets in Lowland Scotland, Alpine Europe, N. America, and elsewhere, they are practically altered andesites.

Porphyry Term used in geology for various igneous rocks, characterised by large, conspicuous crystals in the ground mass. Many of these rocks are as ornamental stones, such as the famous porphyry with red or white crystals in a red ground mass, found in Egypt.

Porpoise Genus of cetacean mammals inhabiting northern seas (*Phocæna*). The common porpoise, *P. communis*, 5 ft. long, abounds on British coasts. It is killed mainly for its oils. So-called porpoise-hide and porpoise laces come from the white whale.

Porson Richard. English scholar. Born Dec. 25, 1759, at Cambridge, and educated at Eton and Cambridge, he was elected Professor of Greek in 1793, and became one of the leading Greek scholars of his day. In 1806 he was appointed Librarian at the London Institution. He published an edition of Aeschylus, and the *Hecuba*, *Orestes*, *Phœnissæ* and *Medæ* of Euripides. He died on Sept. 19, 1808. Instituted in his honour, the Porson Prize is an annual award to graduates of Cambridge for a translation of English poetry into Greek verse.

Port Adelaide Seaport of Adelaide, S. Australia. It is 8 m. from Adelaide. On the Gulf of St. Vincent. It has extensive docks and a good harbour.

Industries include the smelting of copper, silver, etc.

Portadown Town and urban district Co. Armagh, Northern Ireland. On the River Bann, 25 m. from Belfast, on the G.N. Rly., it is a centre for linen manufacture, and has an extensive trade in agricultural produce. Pop. (1926) 11,780.

Portage la Prairie City of Manitoba, Canada. It is 56 m. W. of Winnipeg, C.P. Rly., and is a centre for the export of grain. Pop. 6500.

Portarlington Town of the Irish Free State. It is on the River Barrow, 42 m. from Dublin, on the G.S. Rlys. The town gives its name to an earldom, created in 1785. Since 1900 it has been held by Lionel A. H. S. Dawson-Damer (b. 1883). The title of the eldest son is Viscount Carlou.

Port Arthur City and port of Ontario, Canada. It is at the head of Lake Superior, on Thunder Bay, 990 m. from Montreal. It has extensive docks and a good harbour, and handles large quantities of grain. Other industries include lumbering, shipbuilding and smelting. Pop. 15,300.

Port Arthur (or Lushun-Kou). Fortified seaport at the S.W. end of the Liao-Tung Peninsula, Manchuria. It is a terminus of the Siberian Rly. and has a harbour that may be used throughout the year. It was a Chinese naval station, and was captured in 1894 by the Japanese. Later it was leased to Russia, by whom it was fortified. On the outbreak of the Russo-Japanese War, Feb. 6, 1904, Port Arthur was blockaded by the Japanese and fell many months later. Stoessel, the Russian commander, surrendering on Jan. 2, 1905. The port was ceded to Japan by the Treaty of Portsmouth, 1905, and ten years later the Chinese leased it for a further term of 99 years. Pop. 23,700.

Port-au-Prince (or Port Republicain). Seaport and town of Haiti, W. Indies. It is the capital of the Republic, on the Gulf of La Gonave. Here is a good harbour. The principal exports are coffee, cacao, hides and logwood. Pop. 79,800.

Portcullis Stout grating made of heavy crossed timbers with the lower projecting points tipped with iron. A portcullis was suspended over the gateway of a castle as a means of defence and made to slide up and down in grooves at the side of the entrance.

Port Elizabeth Seaport of Cape Province, South Africa. On Algoa Bay, it is 664 m. from Cape Town and 712 m. from Johannesburg by Rly., and is traversed by the Baakens River. The harbour is open, though sheltered, and jetties are used for landing goods. Manufactures include footwear and there are exports of wool, ostrich feathers, etc. Pop. 37,000.

Port Erin Village of the Isle of Man. It is on the land-locked Port Erin Bay, 15 m. by railway from Douglas. There are fisheries, and a marine biological station. Pop. 3200.

Port Glasgow Seaport and burgh of Renfrewshire, on the Clyde, 20 m. below Glasgow, on the L.M.S. Rly. It is a centre of the shipbuilding industry and possesses iron foundries and manufactures, including rope and sailcloth. Timber is imported. Pop. (1930) 19,580.



POULTRY.—Famous breeds of domestic fowl. 1, Bantams; 2, Light Brahmas; 3, Compines; 4, Houdans; 5, White Leghorns; 6, Buff Orpingtons.

PORT HARCOURT

Port Harcourt Seaport of Nigeria. It is at Iguacha, on a creek which enters the New Calabar and Bonny rivers, about 30 m. from their mouth. It is the terminus of the railway north which is to connect with the Iddo-Kano Rly.

Porthcawl Seaport and urban district of Glamorganshire, Wales. It is 6 m. W.S.W. from Bridgend and 30 m. from Cardiff, on the G.W. Rly. Pop. 6642.

Port Hope Port and town of Ontario, Canada. It is the principal town of Durham Co., on the north shore of Lake Ontario, 63 m. from Toronto. There is a good harbour, and the town is served by three railways, besides its connection with the principal lake ports by steamer services. In addition to manufacturing industries the town has an extensive distributing trade in local produce. Pop. 62,500.

Portishead Urban district and town of Somerset, on the Severn estuary, 9 m. W.N.W. of Bristol, on the G.W.R. There is a large dock. Pop. 3908.

Port Jackson Harbour of Sydney, N.S.W. It is on the coast of Cumberland Co., and is 18 m. long. An arm of the harbour is formed by the Paramatta River. On the shore is Sydney.

Portland Name of three towns in Australia. One is in Victoria, Normandy Co., on the W. side of Portland Bay, 200 m. W.S.W. of Melbourne. Another Portland is in S. Australia, Adelaide Co. The third is in New South Wales, Roxburgh Co., 12 m. N.W. of Lithgow.

Portland Name of two cities of the U.S.A. Portland, Maine, is on Casco Bay, 106 m. N.N.E. of Boston, in Cumberland Co. It is the birthplace of the poet Longfellow. There is a good harbour. Pop. 69,280. Portland, Oregon, is on the Willamette River, near its junction with the Columbia, 63 m. from Salem. It has large exports of flour, grain and lumber. Pop. 301,815.

Portland Peninsula of Dorset called the Isle of Portland. An urban district, it is about 5 m. long and about 1 wide. It is divided from the mainland by the Chesil Bank and can be reached by steamer from Weymouth, or by the G.W. and S. Joint Rly. that runs along the peninsula from Malcombe Ridge. Portland, Easton, Rodwell, Chiswell and Castletown are on the island and at its southern extremity is Portland Bill with a lighthouse. The chief buildings are the large convict prison, a castle built in the 16th century and a more recent one called Pennsylvania Castle. The chief industry is the quarrying of stone. Thomas Hardy called the peninsula the Isle of Slingers. Pop. (1931) 12,018.

Portland Roads is an artificial harbour protected by an enormous breakwater. It is used by the British Fleet which has stores and other establishments here.

Portland Duke of. English title created in 1716. An earldom of Portland, held by the Weston family, 1633-88, became extinct, and was revived by William III. for Hans William Bentinck in 1689. His son, Henry, became 1st duke. William Henry Cavendish Bentinck (1738-1809) assumed the additional surname Cavendish in 1801, having married, in 1766, the daughter of the Duke of Devonshire. Lord Lieutenant of Ireland, 1782, and Prime Minister, 1783, he was Home

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PORT SAID

Secretary in Pitt's Government, 1794-1801, and again Prime Minister, 1807-09. William John, 5th Duke (1800-79) was an eccentric who led the life of a recluse. His nephew, William John Arthur (b. 1857), the 6th duke, was Master of the Horse, 1886-92 and again in 1895-1905. He is Lord-Lieutenant of Nottinghamshire. The eldest son is entitled Marquess of Titchfield. The chief family seat is Welbeck Abbey, Notts.

Portland Cement Cement made by calcining in a kiln a mixture of chalk and finely-divided clay or the river mud of the Thames and Medway. Liassic and carboniferous limestones and shales also are used along with local clays. Portland cement is employed extensively for making concrete and for external plastering.

Port Louis (or Isle of France). Seaport and capital of the Island of Mauritius. It is on the N.W. coast at the head of a bay. The principal exports are sugar and aloes fibre. Pop. 54,460.

Portmadoc Urban district, seaport and market town of Caernarvonshire, on Tremadoc Bay, 16 m. from Caernarvon, on the G.W. Rly. It is the port for the slate quarries of Blaenau Ffestiniog. Pop. (1931) 3988.

Port Moresby Seaport and capital of Papua (British New Guinea). It is on Fairfax Harbour. Pop. 3000.

Portobello Watering place of Midlothian, on the S. shore of the Firth of Forth, 3 m. from Edinburgh, of which city it forms part. See EDINBURGH.

Port of Spain (or Spanish Town). Seaport on the E. coast of Trinidad, British West Indies, capital of the island. Pop. 67,000.

Porto Rico Island of the Greater Antilles, W. Indies, ceded to U.S.A. by Spain in 1898. It is the most easterly of the group, 25 m. E. of Hayti, with an area of 3435 sq. m. Tobacco, bananas, cocoa and coffee are grown here, and sugar and cotton produced. The capital of the island is San Juan. Here large numbers of cattle are reared. The inhabitants are descended from the Spanish and the aborigines. Pop. 1,544,000.

Portpatrick Watering place and seaport of Wigtownshire. It is 7 m. from Stranraer by the L.M.S. Rly. It has a harbour and at one time packet boats went from here to Donaghadee in Ireland, which is only 21 m. away.

Port Pirie Seaport of S. Australia. It is on the E. of Spencer Gulf, 154 m. N. from Adelaide. Here are the smelting works and refineries for the Broken Hill silver mines. Pop. 9500.

Portree Town of Skye, Scotland, the capital of the island. It is situated on the bay of same name, 120 m. by sea from Oban, with which there is a steamer service. Pop. 2120.

Portrush Urban district and seaport of N. Ireland. In Co. Antrim, it stands on Ramore Head, 67 m. from Belfast. The Giant's Causeway is 7 m. distant on an electric line. The ruins of Dunluce Castle are in the vicinity. Pop. 2100.

Port Said Seaport of Egypt at the N. end of the Suez Canal. It is an important coaling station, and has an extensive import and export trade. It was founded in 1859. Pop. 101,000.

Portsea Peninsula of Hampshire, England, between Portsmouth and Langston harbours. Known as "Portsea Island," it is about 6 m. long. The district of Portsea forms part of the borough of Portsmouth, and that city itself stands on the peninsula. See PORTSMOUTH.

Portslade Urban district of Sussex. It is on Shoreham Harbour, 4 m. W. from Brighton, on the S. Rly. Pop. (1931) 9527.

Portsmouth Borough, city, seaport and naval station of Hampshire, on the peninsula of Portsea Island. It is 74 m. from London by the S. Rly. Portsmouth, which was made a city in 1926, includes Landport, Portsea (where are the naval dockyards), Southsea and Cosham. A floating bridge and a ferry connect Southsea with Gosport, across the harbour. Steamers go to Ryde and Southampton. In 1924 it was made the seat of a new diocese of Portsmouth and the Isle of Wight, the old church of S. Thomas becoming pro-cathedral. There is a modern Roman Catholic cathedral. The 16th century Southsea Castle is now a fort.

The Portsmouth dockyards extend over 500 acres, and there is a gunnery school on Whale Island. Pop. (with Southsea, 1931) 249,288.

Portsmouth City and seaport of Virginia, U.S.A., at the mouth of the Elizabeth River, on Norfolk Harbour. Here is a U.S. navy yard, and shipbuilding and railway works. Pop. 55,000.

Portsmouth City of New Hampshire, U.S.A. On the Piscataqua River, 58 m. by railway from Boston, it is the Co. seat of Rockingham Co. The port for the state, it has a large harbour, and a U.S. navy yard is located on one of the many islands. The peace treaty between Russia and Japan was signed here in 1905. Pop. 13,600.

Port Stanley Seaport of the Falkland Islands. It is on the coast of E. Falkland and is the only important settlement there. Exports comprise whale oil, guano, wool, hides and sheepskins. Pop. 900.

Port Sudan Seaport of Sudan. On the Red Sea, 40 m. N. of Suakin, it has a large harbour (opened 1909), and railway connections with Atbara, Suakin, and Kassala. With Suakin it handles most of the trade of the Sudan. Exports include cotton, ivory, gum and durra. Pop. 7000.

Port Sunlight Town of Cheshire, 3 m. from Birkenhead on the L.M.S. Rly. It was founded in 1888 by Lord Leverhulme, and houses the workers in the soap factories of Messrs. Lever Bros., Ltd. Here are recreation grounds, clubs, a fine art gallery, free library, etc. The town is connected with the River Mersey by Bromborough Pool.

Port Talbot Seaport of Glamorgan-shire, on Swansea Bay. It is 11 m. from Swansea, on the G.W. Rly. In 1921 it became a borough, taking in the borough of Aberavon. Port Talbot has extensive docks. Copper is smelted here. At Aberavon there are engineering and tinplate works. Pop. (1931) 40,672.

Portugal Republic of Europe. On the Iberian Peninsula, S.W. Europe, it is bounded S. and W. by the Atlantic, and on the N. and E. by the frontiers of Spain, the River Minho dividing it from the Spanish

province of Galicia. In ancient times Portugal was known as Lusitania. Its area is 35,490 sq. m., including Madeira and the Azores. Its population is 6,033,000. The capital is Lisbon, near the mouth of the Tagus, and another important city is Oporto, on the Douro, whence port wine is shipped.

Besides the Minho, the chief rivers are the Guadiana, Douro and Tagus. Between the two last-named rivers is the mountain range, Serra da Estrela (8540 ft.). S. of the Tagus, the Serra de Guadalupe reaches the coast. N. of the Douro the Cantabrian Mts. run to the coast near Oporto. The Serra de Monchique, a boundary of the province of Algarve, reaches the Atlantic at Cape St. Vincent. The climate is mostly healthy and the soil fertile. Agricultural products include rye, maize, wheat, onions, tomatoes, nuts. Wine-growing is an important industry which swells the export total. Olives, figs and oranges are grown.

Manufactures include textiles, tiles made of porcelain, and cork in various forms. Among minerals copper, lead, tin, silver, coal and iron are found. The chief colonies of Portugal are Mozambique, Dlu, Timor, Goa, Macao, Guinea, Cape Verde Islands, Angola, Principe and St. Thomas Islands, with an area of about 950,000 sq. m., and a pop. of 10,000,000.

Until Oct. 5, 1910, Portugal was a monarchy, but a revolution in Lisbon thence brought about the establishment of a republic. There are two legislative chambers: the lower elected by direct suffrage, and the upper by local councils. The president is chosen by both chambers, and holds office for four years. After the Great War, Portugal received territory which had formed part of German E. Africa.

Port Wine Rich red wine from grapes grown in the Douro Valley, Portugal, and shipped from Oporto. Anglo-Portuguese treaties forbid other wines to be called port. Mostly fortified with brandy on fermentation, the characteristic tint coming from a spirituous mixture containing elder berries, its alcoholic content is 17-25 p.c. Vintage port is usually shipped two years after its specified year, and promptly bottled by the importers. Tawny port usually comprises blends of different years, kept in cask in Oporto until shipped.

Poseidon (or Neptune). Greek god of the sea. He was the son of Chronos (Saturn) and Rhea. His wife was Amphitrite. As a punishment for conspiring against his brother, Zeus (Jupiter), he was obliged to build the walls of Troy. Being cheated of his promised reward for this task by Laomedon, King of Troy, he sided with the Greeks against the Trojans and caused a sea monster to devastate the land.

Posen (or Poznan). City of Poland. On the River Wurtha, 90 m. N. of Breslau, it is an ancient town and the capital of the province. Its manufactures include sugar, locomotives, agricultural machinery, etc. and it handles a considerable river trade. It has two broadcasting stations (335 M., 1.9 kW. and 31.35 M., 1 kW.). Pop. 227,000.

Post Mortem Medical examination of a corpse to ascertain the cause of death. It may be ordered by a coroner to help the jury in their verdict, or may be undertaken for private reasons. In the former case the relatives cannot forbid examination. Despite its value to medical science, it is not popular in U.S.A., nor among Catholics and Jews. See AUTOPSY.

Post Office State service for the conveyance of letters, etc. The British Postal Service may be said to have started in 1635, when a system of packet posts was begun, and farmed at an annual rent. In 1657 it became a Government office under a postmaster-general. In 1710 a general office for the three kingdoms was set up. Mails were first conveyed by postboys, then by coaches. The railway was first used in 1820 and with its general adoption for mails the volume of business increased enormously.

In 1840 Rowland Hill's penny post (inland) was introduced, and in 1898 imperial penny postage. The rates were modified during and after the War. The parcel post was introduced in 1883, and from time to time other services were incorporated, e.g., telegraph and telephone, registrations, money orders and saving banks.

An extensive air mail now operates, facilitating expedition in the exchange of correspondence with the lands overseas.

The British service is controlled by a Postmaster-General, a minister of the Government, sometimes with cabinet rank. The headquarters of the post office is at St. Martin's-le-Grand, London. E.C.

Potash Common name for potassium carbonate and with the prefix "caustic" for potassium hydroxide. Formerly obtained from the ashes of wood, it is manufactured chiefly from the deposits of potash minerals at Stassfurt in Saxony. Potash is a white, deliquescent, alkaline solid used in the manufacture of glass and potassium salts.

Potassium Metallic element having the symbol K, atomic weight 39.1, and melting point 62°C. Potassium is a lustrous, silvery-white metal easily cut with a knife at ordinary temperatures. It floats on water which it decomposes owing to its affinity for oxygen. Potassium is an essential constituent of many minerals and rocks, is present in plant and animal tissues, also as chlorides and sulphates in sea water and mineral springs. Its compounds are of great economic importance.

Potato Tuber of a perennial herb of the nightshade order (*Solanum tuberosum*). Cultivated by the Inca peoples in pre-Columbian America, it reached 16th-century Spain from Peru, and somewhat later Ireland from Virginia, 1585-86. Its cultivation throughout Britain started from 17th-century Lancashire. Now extensively grown in all temperate and sub-tropical regions, it ranks next to cereal grains as a food-plant for man and cattle, besides furnishing farina for textile purposes, dextrine and potato spirit. Besides the destructive potato disease the tuber is also liable to wart disease, the development of varieties immune from which has restored to cultivation much infected land. See SWEET POTATO.

Potential In electricity, a condition of a conductor which may be compared with pressure. When two parts of a conductor are at different potentials, a flow of current takes place from that of greater to that of lesser potential until the potential is equalised. Potential difference (P.D.), therefore, is similar to electromotive force (E.M.F.), and is measured in volts. See ELECTRICITY.

Potentiometer Electrical instrument used for the measurement of the electromotive force of a cell or the difference of potential. It consists of a wire or coil of uniform resistance stretched over a

scale and through which a constant current from a generator is passed. Sliding contacts are provided to enable tapings to be made, and the potential is compared with that of a standard cell of known electromotive force.

Pot-Hole Cavity more or less cylindrical in the bed of a rapid stream, scoured out by detrital matter gyrating in an eddy current of water, sometimes glacier-fed. When the water reaches a plane of stratification in limestone regions it may produce long shafts or swallow-holes, ultimately forming extensive caverns. See KETTLE HOLE.

Pot-Pourri French translation of the name of a Spanish ragout, *olla podrida*. Hence it denotes any medley, musical or literary, and specifically a mixture of dead rose petals, lavender and spices, kept in sachets or porcelain jars.

Potsdam Town of Prussia, capital of the province of Brandenburg. It is 16 m. from Berlin on an island in the lake district of Havel. Here are the former palaces of the German Emperor and others of the Hohenzollern family. The town is picturesque in its situation and planning. Here is the palace of Sans Souci built by Frederick the Great in 1760. The town manufactures chemicals, furniture, surgical and musical instruments, etc. Pop. 64,200.

Pot Still Form of distilling apparatus so-called from its pot-shape and used in the manufacture of spirits. The still is made of copper and is directly heated over a coal fire or by steam. This form of still is used chiefly in making Scotch whisky.

Potteries The District of N. Staffordshire. It is the centre of earthenware and china manufactures, and comprises Hanley, Stoke-upon-Trent, Burslem, Longton, Tunstall and Fenton. These, with other smaller neighbouring districts, were made into the county borough of Stoke-upon-Trent in 1910. See STOKE-UPON-TRENT.

Potter's Bar District of Middlesex. It is 3 m. N. of Barnet, on the Great North Road, 13 m. from London, and on the L.N.E. Rly.

Pottery Art of making vessels and other objects from clays air-dried or fired. In its earlier stage a vessel was built up by hand and fired on an open hearth. Later the potter's wheel and kiln were introduced, followed by the use of glazing and enamelling. Decoration also developed from simple incised lines and colouring to the artistic designs and polychrome ware of later Egypt and Greece.

In mediaeval times the Moors brought enamelled ware into Spain, and in the 12th century a soft coarse ware was introduced from Majorca into Italy whose ceramic products later became famous. In France from the 16th century onwards the making of soft porcelain followed by hard porcelain marked a further advance, and other improvements were made in England under the influence of Josiah Wedgwood.

For fine earthenware and porcelain, kaolin, or china clay, is used, and ballclay, a very strong plastic material, for earthenware, while Cornish stone, felspar, calcined bone and flint form the basis of glazes, etc.

Poultton-le-Fylde Urban district and market town of Lancashire. On the River Wyre, it is 3 m. from Blackpool. Pop. (1931) 3366.

Poultry Name used for domestic fowls, ducks, geese and turkeys. The fowl is derived from the wild Indian jungle fowl. The many varieties are classed roughly as layers (non-setting), utility (general purpose), table and fancy breeds, whose purpose is sufficiently indicated by these names. The principal breeds in the first group are: Ancona, Andalusian, Campine, Hamburg, Houdan, Leghorn, Minorca; in the second, Langshan, Orpingtons, Plymouth Rock, Rhode Island Red, Sussex (red, light and speckled), Wyandotte; in the third, Dorking, Game and certain French varieties; the ornamental varieties include bantams, Yokohamas and others.

Ducks are said to derive from the mallard, and one of the breeds commonly kept, the Rouen, closely resembles the wild duck in appearance. The leading varieties of duck are Aylesbury, Indian Runner, Khaki-Campbell, Orpingtons, Pekin and Rouen.

Geese are said to come from the wild species known as the grey lag, a winter visitor to Britain. The Toulouse and Embden are the most popular for culture, the latter being the heavier. It is white, the Toulouse being grey.

Turkeys are derived from the wild N. American species; there are three breeds mainly favoured in Britain, the American Bronze, the Cambridge Bronze, and a smaller variety, the Norfolk black turkey.

The interests of poultry breeders and exhibitors are looked after by the Poultry Club, 3 Ludgate Broadway, London, E.C. 4.

Pounce Powder formerly sprinkled over newly written matter to prevent the ink spreading or blotting. Composed of sand, cuttle bone, or some resinous substance, it was shaken out from a box with a perforated lid, called a pounce-pot. The use of pounce died out after the introduction of blotting paper.

Pound English unit of weight. It is divided into 16 oz. avoirdupois or 7000 grains. In troy weight, used for weighing gold, silver, platinum and precious stones, and in dispensing medicines, the pound is equal to 12 oz. or 5760 grains.

Pound British monetary unit. The British pound sterling was originally 5760 grains of silver of a standard fineness. In 1816 gold currency replaced the silver pound. The gold sovereign has no relation to any pound weight, and actually weighs 123.274 grains of 22-carat gold.

Pound Public enclosure for lost or straying animals, or for receiving animals or goods taken in distraint for rent. The cost of feeding such animals is recoverable from the owner.

Poussin Nicholas' French painter. Born in June, 1594, he studied painting under Quentin Varin, and later secured powerful patronage. From 1640-42 he was at Paris as court painter to Louis XIII., returning thereafter to Rome, where he worked until his death, Nov. 19, 1665. His paintings (historical pictures, sacred subjects and classical landscapes) are to be found in most European capitals. In England the National Gallery and Dulwich Gallery have many fine examples of his work.

Poussin's brother-in-law, Gaspard Dughet, born in 1613, was also a painter. He took the name of Pousin, and became famous for his landscapes. He died on May 27, 1675.

Power of Attorney Written authority, usually signed and sealed, empowering the person

named to perform acts which otherwise could only be performed by the donor. It may be general, to cover all negotiations, or special; it ceases at the principal's death, and is terminable at his discretion.

Power Transmission Engineering term. Power generated from natural sources such as coal, natural gas, water, etc., may be transmitted for useful application some distance away by mechanical means—shafting, moving ropes, etc.—or by high pressure air and water mains, or after conversion into electricity, by overhead or underground cables. The term is applied especially to the transmission of electrical power by a network of overhead cables.

Poynter Sir Edward John. British painter. Born in Paris on March 30, 1836, he became A.R.A. in 1869, and R.A. in 1876, and succeeded Millais as P.R.A. in 1896. He was Director of the National Gallery, 1884-1905. Knighted in 1896, he was made a baronet in 1902, and died on July 26, 1919. His work includes classical paintings, portraits, and frescoes.

Pozieres Village of France, near Albert, Somme. During the Great War it was held first by the Germans, to whom its slightly elevated position made it useful for observation over the adjacent battle zone. In July, 1918, it was rushed by British and Anzac divisions. In the spring of 1918 it was recaptured by the Germans, but taken again by the British in August. There is a memorial to the Australians who died in the attack of 1916, and also a British memorial. See ALBERT, SOMME.

Praefect Title of certain officials of ancient Rome. There were naval and military praefects. A *praefectus castrorum*, or camp praefect, was attached to every legion. The *praefectus urbi* (earlier termed *castor urbi*) was warden of the city. During the empire the office of *praefectus praetorio*, or commander of the praetorian guard, became of great importance, and at one time the powers of such praefects were exceeded only by those of the emperor himself. See PRAETOR.

Praetor In ancient Rome, a magistrate next in importance to a consul. The praetor was first elected in 366 B.C., his office being to rule during the absence from Rome of the consuls on military service. In 246 a second was appointed (*praetor peregrinus*), the first being then termed *praetor urbanus*. Later more praetors were appointed, to govern new provinces, or take charge of departments of the state. A curule magistrate, the praetor presided at criminal trials, and was attended by lictors.

The Praetorian Guard was a body of troops whose duty was to guard the emperor. Instituted by Augustus, 2 B.C., eventually they wielded such influence as to make and break emperors. The *praetoriani* were disbanded in A.D. 312 by Constantine.

Pragmatism Doctrine of philosophy. William James or Chas. S. Peirce was apparently the first to use the term, which denotes a doctrine according to which the truth of a conception is to be tested by its practical value, or its workableness. It has been described as a revolt against the over elaborated idealism of the metaphysicians. See JAMES, W.

Prague City of Czecho-Slovakia, capital of the republic. Its German name

is Prag; Czech, Praha. In Bohemia, on both banks of the Moldau river, it has extensive suburbs. The Gothic Cathedral dates from 1344. On the left bank of the Moldau is the fortress of Hradshchin. Prague is the seat of a German and Czech university. It has an extensive river traffic, and many important industries, including iron foundries, engineering works, chemical and cement works, textile factories. It has two broadcasting stations (488.6 M., 120 kW. and 58 M.). Pop. 850,000.

Prairie Dog (or Prairie Marmot). Genus rodent of the squirrel family (*Cynomys*). Stout, squat, 12 in. long with 4 to 5 in. tail, reddish-grey and paler beneath, prairie dogs live gregariously on the plains, sometimes forming extensive villages, and utter whistling cries. The common *C. ludovicianus* is replaced by a white-tailed form W. of the Rocky Mts.; another is Mexican.

Prawn Widely distributed family of shrimp-like ten-footed crustaceans. Mostly marine, 2-12 in. long, the last three pairs of thoracic limbs never bear pincers; the two front pairs frequently do. The British edible *Palaeomon serratus*, 3-4 in. long, with toothed rostrum projecting in front of the carapace, is usually taken in hand ring-nets or oyster basket-traps. Some tropical species rival lobsters in size, e.g., the W. Indian prawn, *P. jamaicensis*, and the Indian prawn, *P. lar*, highly esteemed with curry.

Praxiteles Greek sculptor. He lived at Athens, where, perhaps, he was born c. 400 B.C. His works are known mostly by copies which exist, such as the Aphrodite of Chnidus, Kros, Satyr, Apollo, and others. During excavations among the ruins of Olympia in 1877 a group of Hermes and Dionysus by Praxiteles was found, which is probably the only original sculpture by him in existence. His work is characterized by its fine modelling, beauty of line, and expression. He died c. 330 B.C.

Prayer Book Order of church services. In its present form the Book of Common Prayer of the Church of England dates substantially from 1559, when, after the accession of Elizabeth, the second prayer book of Edward VI. (1552) was revised. The first prayer book of Edward VI. (1549), mainly an English version of the Missal, found little favour either with the reformers or those who adhered to the ancient rites, and Edward's second book was intended to placate the former party, who desired a closer conformity with the liturgy of the reformed churches abroad.

Repressed by the Commonwealth, and restored in 1660, the Act of Uniformity of 1602 authorised it as the only legal service book. In 1927 a revised prayer book was submitted to Parliament, after acceptance by both convocations and the Church Assembly, but was rejected. Some alterations were made, and it was presented to Parliament in 1928, but that body again rejected it.

Prebend Term formerly denoting the stipend of a secular priest or a canon regular, or the endowment from which this was provided. It was afterwards applied to the endowment for a canon residentiary of a cathedral, who was known in consequence as a prebendary. In modern times, however, this is generally an honorary office, and the prebendary is then not a member of the cathedral chapter, and receives no stipend.

Pre-Cambrian Name denoting all rocks older than the Cambrian; all, or the oldest at least, also called Archaean. Lying beneath the Cambrian beds containing *Olenellus trilobites*, they comprise igneous and sedimentary rocks, usually highly metamorphosed, exposed over one-fifth of the present land-surface, including 1,800,000 sq. m. in Canada and large areas in N.W. Scotland. See LAURENTIAN.

Precedence Priority of place to which titled and official persons or officers of the Services are entitled by the rank conferred on them by the crown. There is an official table of precedence in which the order is set out. The sovereign is at the head, followed by the Prince of Wales and other sons, brothers, uncles and nephews of the sovereign, and ambassadors. Next come the Archbishop of Canterbury, Lord Chancellor, Archbishop of York, Prime Minister, Lord President of the Council, Speaker of House of Commons, Lord Privy Seal, Lord Great Chamberlain, Lord High Constable, Earl Marshall, Lord Steward of the Household, and Lord Chamberlain. Then follow dukes, marquesses, earls, viscounts, bishops, secretaries of state (if barons) barons, certain officers of the household, secretaries of state not barons, Knights of Garter, Privy Counsellors, Chancellor of Exchequer, Chancellor of Duchy of Lancaster, Lord Chief Justice, Master of Rolls, Appeal Justices, Lords of Appeal, other Judges, baronets, members of orders of knighthood, County Court judges, companions, members and officers of various orders, gentlemen entitled to bear arms. Sons of peers, baronets, knights, etc., rank in a manner decided by that of the father, a duke's eldest son, for example, taking precedence after a marquess, and the eldest son of a marquess after an earl.

Precentor Leader of singing in church. In most English Old-Foundation cathedrals he ranks after the dean, a vicar-choral being suocentor; in others he is a minor canon, and in some important parish churches the senior curate. In Scottish churches he led the psalmody before organs were introduced.

Preceptor Literally this means a teacher. The College of Preceptors, established 1846, incorporated 1849, is a body devoted to education, granting various diplomas to teachers, and issuing a certificate of teaching ability. Examinations for pupils are held. The diplomas are those of Associate, A.C.P., licentiate, L.C.P., and fellow, F.C.P. The address of the college is Bloomsbury Square, London, W.C.1.

Precession Astronomical term. It is used in relation to the slow backward movement of the equinoctial points along the ecliptic and known as the precession of the equinoxes. This is due to the differential attraction of the sun and moon upon the earth's equatorial protuberance. The equinoctial points take 25,800 years to complete one circuit of the heavens.

Precipitation Term in chemistry for the process by which an insoluble substance is made to fall to the bottom of a liquid. The solutions of two substances are mixed, forming a third substance which, being insoluble, sinks to the bottom and is termed a precipitate.

Predestination Theological term denoting the Divine predetermining of human destiny. It may

stand for belief in fate, the conception that all that is to be is eternally and changelessly decreed, or, specifically, that each individual is destined beforehand to everlasting weal or woe. Age-long controversies have attended attempts to reconcile the doctrine of human free-will with that of God's omnipotence. See AUGUSTINE, CALVIN.

Prefect One set in authority. In France the préfet is the civil governor of a department, and this title is given also to the head of the Paris police (Seine department). The prefects at English public schools are senior boys charged with keeping order and maintaining discipline. See PREFECT.

Premium Term meaning a prize, reward, or bonus. An apprentice or article pupil pays a premium for his instruction in a trade or profession. Shares in a company are sometimes quoted at a premium, i.e., a sum above their par value, £100 worth costing £105, etc. A premium bond is a bond carrying with it the chance of winning a money prize. Such a scheme is of the nature of a lottery, the prizes being given to holders of certain numbers drawn. The term is also used to denote sums payable periodically in respect of policies of insurance.

Pre-Raphaelites Group of English artists who, in 1848, broke away from the conventional art of their day. They formed the Pre-Raphaelite Brotherhood with the idea of returning to the primitive outlook of the early Italian painters. The original founders were Holman Hunt, Rossetti and Millais. The movement brought about the use of purer and truer colours, but was marred by over elaboration of minute detail.

Prerogative Right or privilege attaching to a person or body. The royal prerogative, now exercised through the cabinet or the privy council, entitles the sovereign to declare war, summon, prorogue or dissolve parliament, nominate ministers, create peers, pardon offenders, etc. Former ecclesiastical courts dealing with the probate of wills of persons dying in the provinces of Canterbury and York were called prerogative courts. See CROWN; PROBATE.

Presbyopia Defect of vision, usually of the eye lens in old age. The sufferer is unable to focus near objects but can still see distant ones clearly. The condition is corrected by wearing convex lenses.

Presbyter Elder of the early Christian Church; the name is also used for a priest. In the Presbyterian denominations a presbyter is an elder or a member of a presbytery, the latter being an official court of a district, composed of pastors and elders. The district also is termed a presbytery.

Presbyterianism Form of church government by presbyters or elders. Claiming to be a New Testament institution, in continuation of Jewish synagogue practice, it developed into the prelatic form of rule of mediæval Christendom. At the Reformation presbyterianism emerged once more, notably under Calvin's forceful influence, side by side with the independent principle which congregationalism developed. Destined to prevail in Scotland, it acknowledges the government of each church by elders, including the preaching elder or minister. Churches are associated in local

presbyteries, which are represented in provincial synods, and in a national or general assembly constituting the final court of appeal, meeting annually; each court is under a presiding moderator. World statistics of Presbyterianism reckon a present strength of about 6,500,000. See CALVINISTIC METHODISTS; SCOTLAND, CHURCH OF, etc.

Prescot Urban district and market town of Lancashire, on the L.M.S. Rly., it is 7 m. from Liverpool and a centre of the watchmaking industry, with potteries, electric cable works and coal mines. Knowsley, the seat of the earl of Derby, is in the neighbourhood. Pop. (1931) 9396.

Pressburg German name of the city known as Bratislava. See BRATISLAVA.

Press Gang Men formerly engaged in compulsory recruiting for the army or navy. By an act of 1835 the period of compulsory service for men impressed for the navy was limited to five years.

Pressure Gauge Appliance for measuring the pressure of steam, gas, water, etc. The usual type of gauge on boilers for registering steam pressure consists of a flattened bronze tube bent in a curve and having one end open and connected to the steam pipe, the other end being sealed and linked to a pointer on a dial graduated to lbs. per sq. inch. Pressure of steam in the tube causes it to tend to straighten and this movement is registered by the pointer.

Prestatyn Market town and urban district of Flintshire. A coast town, it is 20½ m. from London by the L.M.S. Rly. Here is a ruined castle. Pop. 4511.

Presteign Urban district and market town of Radnorshire. On the River Luggie, it is 7 m. from New Radnor, on the G.W. Rly. It is the county town. Pop. (1931) 1102.

Prester John Legendary 12th century Christian ruler of a kingdom in the Far East. The name means "priest." He is referred to in many mediæval traveller's tales, and attempts have been made to show that Prester John was the ruler of a state in Abyssinia. A kinsman who took the same name is said to have been slain by Jenghiz Khan.

Preston Seaport, county borough, river port and market town of Lancashire. It is 31 m. from Manchester, on the estuary of the Ribble, 12 m. from its mouth. It is 209 m. from London by the L.M.S. Rly. Preston is a centre of the cotton spinning industry and there are also foundries, engineering works and shipbuilding yards. The harbour and extensive docks are owned by the town. It sends two members to Parliament. Pop. (1931) 118,839. Preston was the scene of a battle fought, Aug. 17, 1648, between Parliamentarians and Royalists in which the latter suffered a heavy defeat.

The famous association football club, **Preston North End**, was one of the clubs comprising the league in 1888 and won the league championship in that year and the F.A. Cup in 1889.

Prestonpans Village of Haddingtonshire. On the Fifth of Forth, 9 m. from Edinburgh, it has a station on the L.N.E. Rly. The name is derived from former salt pans here which were worked until the end of the 17th century.

The Battle of Prestonpans, Sept. 21, 1745, was fought between a Jacobite army under Prince Charles Edward and royal forces commanded by Sir John Cope. The latter had landed at Dunbar and was marching on Edinburgh, whence the Jacobites came out to meet him. Cope's army was quickly routed, only a few, including the leader, escaping to Berwick.

Prestwich Urban district of Lancashire. It is 4 m. from Manchester, on the L.M.S. Ry. Cotton is manufactured. Pop. (1931) 23,676.

Prestwick Burgh of Ayrshire, on the Firth of Clyde, 2 m. from Ayr. It is famous for its golf links. It is on the L.M.S. Ry. Pop. (1931) 8538.

Pretoria City of the Transvaal. On the Apies river, 45 m. from Johannesburg, it was founded by and named in honour of Marthinus Pretorius (1819-1901), first president of the South African Republic. It is the capital of the Transvaal and the seat of government of the Union of South Africa. The city lies at the foot of the Moggalsburg Mts., and is a railway junction. Pop. 54,300, whites.

Priam In ancient Greek legend, the last King of Troy. Son of Laomedon, and husband of Hecuba, he was the father of Hector and Paris. When Hercules took Troy in revenge for Laomedon's broken promise to reward him for rescuing Hesione from the sea monster, Priam was spared, and Hesione redeemed him from captivity. Priam was slain by Neoptolemus when the Greeks captured Troy.

Prickly Pear See CACTUS.

Priestley John Boynton. British author. Born at Bradford, 1894, he attended the high school there. He served in the Great War and then went to Trinity Hall, Cambridge. He had earlier done work for a Socialist weekly, and took up reviewing for the *Daily News*. He wrote lives of George Meredith and T. L. Peacock, 1926-7, and a successful novel, *The Good Companions*, 1929, which was produced as a play in 1931. Two other novels, *Angel Parent* and *Faraway*, followed in 1930 and 1932 respectively.

Priestley Joseph. British chemist. Born on March 13, 1733, he was educated for the nonconformist ministry, and while at Warrington as minister published a *History of Electricity* (1767). Going to Leeds, where he remained some years, he began to study gases, discovering oxygen in 1774. From 1780-91 Priestley was a minister at Birmingham, where his political opinions caused him to be mobbed and his house and library burned. He went to London, and in 1794 emigrated to Pennsylvania, where he died Feb. 6, 1804. Among his discoveries were nitric oxide, hydrochloric acid, and sulphur dioxide. He was the first to use carbon dioxide in the preparation of "mineral" waters.

Primate Title of the Archbishops of Canterbury (Primate of all England) and York (Primate of England). An analogous title, primus, is held by the bishop who presides over the Synod of the Episcopal Church of Scotland. In the R.C. Church the title primate is borne by bishops of sees formerly carrying with them the dignity of Vicar of the Holy See.

Primates Highest mammalian order. It includes mankind, apes, mon-

keys and lemurs, although some authorities rank these separately. Except man (o.e.), who has adapted himself to all climates and developed other distinctive characters, all are essentially tropical and sub-tropical and nearly all arboreal. The fore-limbs are set apart to wait chiefly upon the head, and like the hind-limbs are adapted for grasping, the great toes being flat-nailed and usually opposable. The eyes are brought to the front of the head. See MONKEY.

Prime Minister Chief minister of the British sovereign and people, also known as the premier.

The prime minister must be a member of Parliament and since 1923 has been a member of the House of Commons. He is selected by the sovereign, but must enjoy the support of a majority of the members. He selects the members of the Cabinet, advises the sovereign on all matters of importance, heads the government and is the leader of his own political party.

Prime Ministers of the Past Hundred Years

1830-34—Earl Grey	1886—W. E. Gladstone.
1834—Viscount Melbourne	1891-92—Marquess of Salisbury.
1834-35—Sir Robert Peel	1892-94—W. E. Gladstone.
1835-41—Viscount Melbourne	1894-95—Earl of Rosebery.
1841-46—Sir Robert Peel	1895-1902—Marquess of Salisbury.
1846-52—Lord John (Earl) Russell	1902-05—A. J. (Earl of) Balfour.
1852—Earl of Derby	1905-06—Sir H. Campbell-Bannerman.
1852-55—Earl of Aberdeen	1910-16—H. H. Asquith (Earl of Oxford).
1855-56—Viscount Palmerston	1916-22—D. Lloyd George.
1856-59—Earl of Derby	1922-23—A. Bonar Law.
1859-65—Viscount Palmerston	1923-24—Stanley Baldwin.
1865-66—Earl Russell	1924—J. Ramsay MacDonald.
1866-69—Earl of Derby.	
1869—B. Disraeli (Earl of Beaconsfield).	
1869-74—W. E. Gladstone.	
1874-80—Earl of Beaconsfield.	
1880-85—W. E. Gladstone.	
1885-90—Marquess of Salisbury.	

Primitive Methodists Evangelical community. It arose from the introduction into English Methodist practice of open-air revival meetings. From 1807 onwards such meetings, held under Wesleyan Methodist protection, were especially fostered by Hugh Bourne and William Clowes who, excluded from membership for utilising unauthorised forms of worship, joined forces, 1810, and adopted the Primitive Methodist title, 1812. For 30 years the founders actively guided the rapidly expanding work, and 10 years after that, when both had died, a loose connection of federated districts gradually developed, becoming the Primitive Methodist Church, 1902. Organic union with other Methodist communions was authorised by Parliament for 1933. See METHODISM.

Primo de Rivera See RIVERA.

Primogeniture Right of the first-born. It was applied in England to the practice whereby real estate descended to the eldest son on intestacy. This system was done away with by an act of 1925.

Primrose Herbaceous perennial of the genus *Prunella*, of which there are 250 species. The case with which they may be cross-fertilised makes them a popular English garden flower, the best hybrids being obtained from auricula, Chinese primrose and primrose obconica.

Primrose League Conservative political organisation. Founded in 1883, its name is an allusion to a favourite flower of the Earl of

Beaconsfield. The anniversary of Beaconsfield's death, April 19, known as **Primrose Day**, is honoured by the wearing of a bunch of primroses. The address of the Primrose League is 64 Victoria St., London, S.W.1.

Primula Large genus of perennial herbs of the primrose order. The British species are the common, bird's-eye and Scottish primroses, cowslip and oxlip (*g.v.*). Besides the garden polyanthus, derived from one or two of the above, innumerable varieties, double-flowered forms and hybrids have come from these and exotic species introduced since the 16th century.

Prince Albert City of Saskatchewan, Canada. It is on the North Saskatchewan River, 247 m. N. of Regina, and is a junction on the C.N. Ry. The chief industries are lumbering and the milling of grain. The Prince Albert National Park, opened in 1928, has an area of 1400 sq. m. Pop. 7873.

Prince Edward Island

Province of Canada. It is in the Gulf of St. Lawrence, separated from the mainland by Northumberland Strait. Its area is 2184 sq. m.; and it is the smallest of the Canadian provinces. The capital, Charlottetown, is on Hillsborough Bay. Agriculture is the principal industry. The island was colonised by the French about 1720, became a British possession in 1763, and was united to the Dominion of Canada in 1873. Pop. (1931) 88,040.

Prince of Wales Title borne first by the son of Edward I. and since conferred on the eldest son of the sovereign. The badge is a plume of three ostrich feathers enfiled by a coronet, the motto being *Ich dien* (Ger., I serve).

Prince Rupert Port of British Columbia. It is on Klen Island in the Skeena River, 650 m. N. from Vancouver, and is a terminus of the C.N. Ry. There is a large harbour, and various fisheries are carried on. Pop. 7500.

Princes Risborough Town of Buckinghamshire. It is 7 m. from Aylesbury, on the L.N.E. Ry. Chequers, the official country residence of the Prime Minister, is 3½ m. away. Pop. 2438.

Princeton Town of New Jersey, United States. It is 10 m. from Trenton and is served by railway and canal. The university owes its existence to a college founded at Elizabethtown in 1746, and moved to Princeton in 1756. It was then called the college of New Jersey. There are over 2000 students.

Princetown Town of Devonshire. It is on Dartmoor, 22 m. from Plymouth, on the G.W. Ry. Near is Dartmoor prison. The town, which is a tourist centre, is on the estate of the Prince of Wales, as Duke of Cornwall.

Printing Art of printing from movable types. It originated in the mid-15th century in Germany. Gutenberg, and Fust and Schoeffer at Mainz, were doing experimental work before 1450, and the 42 line Bible known as Gutenberg's appeared in 1455. Work was also done at Strassburg, and from Mainz the art spread to Nuremberg, Cologne and Augsburg. Sweynheim and Pannartz established a press first at Subiaco and then at Rome. The Frenchman, Jensen, inventor of Roman type, began printing at

Venice in 1470. In France, Spain and Flanders, Holland, and Switzerland presses were soon at work, and in 1476 the English Caxton, after some preliminary work at Bruges, set up his press at Westminster.

The modern art is divided roughly into letterpress, or relief printing, and lithographic, a flat surface being used in the latter. (*See LITHOGRAPHY.*) Letterpress printing comprises the composition of type, assembling of type and blocks, etc., and the machining. The introduction of the Monotype, Linotype and Intertype (1886-9) abolished hand composition for all but special work. The first casts separate types set up into lines, and is widely used for book work; the others turn out solid slugs each a stereo of a single line, used for newspaper work, etc. Monotype set matter can be corrected and manipulated like hand-set matter.

Early printing presses were not greatly different in principle from those still used for odd purposes in printing works. The forme of type was carried on a flat bed, and the paper pressed into contact with it by a platen. Koenig (1811) introduced a cylinder press which was the prototype of those used largely to-day for book printing. Advances were the addition of another cylinder, permitting both sides of the paper to be printed in a single operation. In modern rotary presses forme cylinders carry curved stereotypes of the type matter and the paper is fed from one or more reels. The output from several units can be combined, folded into a newspaper and delivered automatically at a remarkable speed. *See INTAGLIO; LITHOGRAPHY.*

Prior Matthew. English poet and diplomat. Born July 21, 1664, he entered the diplomatic service 1691, going to The Hague, Paris, and in 1711 to Utrecht in connection with the peace treaty. He was at the Paris embassy as minister in 1713; on his return in 1716 he was impeached and imprisoned for two years. His chief poems are *Solomon, or the Vanity of the World*, and *Alma, or the Progress of the Mind*. He died Sept. 18, 1721.

Pripet River of Russia. It rises in the west of the country and joins the Dnieper, north of Kiev. Its length is about 500 m. and it is navigable to Pinsk. Canals connect it with the Vistula and other rivers. It flows through a district of marshes which became prominent during the Great War.

Prism Geometrical term for a solid whose two ends are equal similar and parallel plane figures, and its sides parallelograms. The axis joins the centres of the two ends, and a right prism has its axis perpendicular to its ends. In optics a triangular glass prism is used for refraction and dispersion of light.

Prison Place of detention. The modern system for dealing with criminals dates from the early 19th century. John Howard had published in 1777 his powerful plea for reform. In 1813 Elizabeth Fry began her work for the Newgate prisoners. Jeremy Bentham's "Panopticon" was the model for Millbank penitentiary (1816). Pentonville (1842) was part of the scheme for the separate system which had been recommended by the House of Lords in 1835. Holloway prison was built in 1854. Dartmoor, built for French war prisoners in 1806, was made into a convict prison in 1850, and the prison on Portland Bill was constructed about the same time. Transportation ceased, and a new system became



PRINTING.—A miracle of intricate mechanism—a huge rotary press of a modern newspaper that turns out 500,000 copies an hour—printed, cut, folded, counted and ready for delivery. *(Daily Herald)*

necessary. Penal servitude was introduced, and the employment of convicts on public works of some magnitude. See **BORSTAL**; **PENAL SERVITUDE**; **REFORMATORY**; **TRANSPORTATION**.

Privet Genus of shrub or low trees of the olive order (*Ligustrum*). They bear simple entire leaves and clustered white funnel-shaped flowers, yielding small globular berries. Of the common privet of Britain and Europe, *L. vulgare*, variegated and weeping varieties are cultivated, besides Chinese and Japanese evergreen species.

Privy Council Council to advise the sovereign on matters of state. Since the adoption of the system of cabinet government this body has lost much of its former powers, and now deals mainly with certain formal matters. Thus on the death of the king it is summoned to proclaim the new sovereign. The council is composed of distinguished persons of the country, including the royal princes, the archbishops of Canterbury and York, officers of State and of the Household, the Speaker of the House of Commons, etc. Its members are styled, "The Right Honourable" and take precedence after Knights of the Garter. The Lord President of the Council ranks next to the Prime Minister. The judicial committee of the council is the supreme appeal court for the Dominions. See **CABINET**; **JUDICIAL COMMITTEE**.

Privy Purse In England the allowance from the civil list for the personal use of the sovereign. It is dealt with according to the King's direction by the Privy Purse Office. The amount is \$110,000 per annum.

Privy Seal One of the three legally recognised Royal Seals. It first appeared under King John, and was used to validate the Crown's private expenditure. Its use was abolished in 1884, but the title of Lord Keeper for one of the members of the Cabinet was retained.

Prize Court Court to deal with prizes of war, i.e., ships and goods captured at sea. Such courts are set up by the countries concerned upon the outbreak of hostilities. The procedure differs in various countries. During the Great War the proceeds of prizes taken by British ships were paid into a common fund for the whole navy. Formerly the practice was to distribute the prize money among the company of the ship actually taking the prize.

Probate Legal proving of a will. The will, with a copy, is taken to a registry, and also an affidavit stating particulars of the testator's estate, and another proving his death, etc. Upon the will being admitted to probate a parchment copy (the probate copy) is issued, which is legal evidence of the will, the original being filed at the registry, where it can be inspected on payment of a fee. See **WILL**.

Probation Judicial system under which offenders, instead of being committed to prison upon being convicted, are placed under a bond to be of good behaviour for a specified period. The method is used with young delinquents, who are then sometimes placed under the supervision of a probation officer. If the offender breaks his bond he may be recalled and sentenced. See **BORSTAL**; **REFORMATORY SCHOOL**.

Process Course of legal proceedings. The writ of summons also is called a process and the officer serving it is

termed a process server. In Scots Law the term process means a summary warrant for imprisonment issued against a person who, having borrowed a process from the court, unwarrantably refuses to return it.

Proclamation Public announcement of an executive act. It is made by authority of the king in council, and the proclamation is read aloud in the capitals by heralds. Thus the death of a sovereign and accession of his successor, are proclaimed, and a similar announcement is made of a declaration of war. The prorogation and dissolution of Parliament are also proclaimed.

Proconsul In ancient Rome a magistrate who acted in place of a consul. He was usually a consul who had his *imperium* continued beyond his year of office. It became customary to entrust such an officer with the charge of a province or the command of an army. See **CONSUL**.

Proctor Form of the word procurator, meaning one who performs duties for another. The name is given to two officers of Oxford and Cambridge Universities among whose duties is the maintenance of discipline among undergraduates.

The legal officer known as the king's proctor intervenes in divorce or nullity suits if he suspects collusion or fraud. The term proctor is employed also for certain representatives in convocation (q.v.). See **DIVORCE**.

Procurator Procuring of a girl or woman for unlawful intercourse. An Act of 1895 (amended by the Criminal Law Amendment Act, 1912) prescribes heavy penalties for the offence.

Procurator One who acts for another. In Scotland it is used for a law-agent. The faculty of procurators fixes the fees to be charged by its members for conveying or litigation business. The procurator-fiscal is a Scots law officer appointed by the Lord Advocate. He inquires into cases of crime and conducts investigations into cases of sudden death. He also prosecutes in cases indicted before the supreme court.

Profiteering Selling of commodities at an exorbitant profit. During the Great War prices rose generally and some sought to take advantage of a national emergency. In Great Britain an Act was passed in 1919 to stop profiteering. The Board of Trade was given power to investigate complaints and take action against offenders.

Profit Sharing System by which those employed in a business receive besides the ordinary wage, a share of the profits made. It is held that the giving of this bonus, by causing the worker to take a greater interest in the business, helps to effect economies and reduce waste. Difficulties arising are that the profits are governed by other factors than production costs, and trade unions have given the system relatively little support. See **CO-PARTNERSHIP**.

Progression Mathematical term denoting a type of series. Thus a series of numbers may be in arithmetical progression, as 2, 4, 6, 8, 10, where the numbers have a constant difference; or in a geometrical progression, as 4, 16, 64, 256, 1024, where each is a regular multiple of the preceding one.

Prohibition Term especially applied to the prohibition of the manufacture, sale, and transportation of

intoxicating liquors for beverage purposes. The United States of America imposed a prohibition measure in July, 1919. As a war measure, control or prohibition of the liquor traffic was imposed in several other countries. Various provinces of Canada from 1915-1917 introduced prohibition until Quebec alone remained outside, and in that territory a great area had adopted prohibition under local option. In the United States an illicit liquor trade quickly developed. Smuggling became rife, both from the seaboard and the land frontiers, and a regular industry grew up of the running of cargoes of intoxicants to points outside American territorial waters, whence the liquor was transmitted to the vessels of the so-called "boot-leggers." See LOCAL OPTION.

Projectile Body projected or given a free path through the air, as in the case of a ball, bullet or shell. The path described by a projectile is termed the trajectory and the study of the different factors governing it has become very important.

Proletariat Term used to denote the wage-earning class of a community collectively. By socialists it is used to distinguish this class from the capitalists and the middle classes, often termed *bourgeoisie*. The word is from a Latin one meaning those citizens who had no property, but served the state by producing offspring.

Prometheus In ancient Greek legend, one of the Titans. He climbed to the heavens and stole fire from the sun in order to give life to men. Zeus punished him by causing Vulcan to chain him to a rock on the Caucasus, and here a vulture came by day and fed on his liver which grew afresh each night. Finally, Hercules delivered Prometheus and killed his tormentor.

Promissory Note Written promise to pay on demand or at a specified future time a sum of money to a person specified, or to his order, or to bearer. The note must be signed by the drawer, and the promise must be subject to no conditions. Unlike an I.O.U. which is a mere acknowledgment of a debt, a promissory note is negotiable, and if endorsed by the payee (or person to whom the promise is made) to a third party—the endorsee—the latter can sue the drawer whether or not there was valuable consideration in the first place. See BILL OF EXCHANGE.

Proof Spirit Dilute alcohol. It contains 49.24 per cent. by weight or 57.08 per cent. by volume of absolute alcohol. Its use in pharmacy is now superseded generally by alcohol of a higher strength. Spirit stronger than proof spirit is said to be overproof, if weaker, underproof.

Propagation Continuing a species by processes of reproduction. Most flowering plants effect it naturally by seeds, runners rooting at the joints, offsets from bulbs or stems above ground, etc. Artificial methods used in horticulture include detaching slips, cuttings, shoots or suckers, dividing the plant into reproductive sections, layering and grafting.

Propeller Revolving mechanism for driving steam or motor vessels, aircraft or machinery. A screw propeller used on vessels takes the form of a shaft with spiral blades, and the speed of the propeller is limited largely by centrifugal effort.

In aircraft the term specially refers to the airscrew which propels the machine.

Propertius Sextus. Roman poet. Born in Umbria about 49 B.C., he was a friend of Maecenas, Virgil, Ovid, Tibullus and Horace. He is celebrated for his *Elegies* in which he followed the style of the Alexandrine elegiac poets. His poems are mostly concerned with his mistress "Cynthia," a native of Tibur, whose real name was Hostia. The fourth and last book of elegies deals with Roman history. He died about 16 B.C.

Proportional Representation

System of voting. It aims at securing representation of minority bodies according to their numerical proportions. When a constituency returns several representatives the voter records also a second or third choice, according to the number of representatives seeking election. A definite quota of votes is necessary to procure election, the quota being determined after the ballot, according to the number of votes polled and the number of vacancies to be filled. When, on the first count, one or more candidates secure election by polling the requisite number of votes, any surplus votes above the quota are apportioned among the other candidates according to the second choice shown on the ballot papers. The candidate with fewest votes is declared defeated, and his votes are transferred to the next preference indicated, this probably enabling a further vacancy to be filled. So the process continues, with transference of votes to next choice, until all the necessary representatives are elected.

Prorogation Discontinuance of a session of Parliament by royal authority without dissolution. Parliament is prorogued at the close of a session by proclamation by the king in person, or by His Majesty's commission. See DISSOLUTION.

Prose Form of literature in which ordinary direct language is employed. Prose is distinguished from verse, the other main form of literary expression, by being devoid of metre, but must have rhythm. English prose really began with Alfred the Great, who translated Bede's Chronicle. Tyndale's Bible (1525), it has been well said, fixed our standard English. See POETRY.

Proselyte Convert from one religion or opinion to another; originally a Gentile convert to Judaism.

Prospecting Systematic search for minerals. The prospector must be versed in geology and mineralogy. Geology will afford information about underlying strata, lodes, etc., as presaged by exposed sections such as cliff or river bank. Mineralogy will enable him to recognise the surface indications of buried minerals, and to identify them when reached. Apparatus ranges from the primitive divining rod, with which some claim to be able to locate hidden mineral deposits, and the magnetic needle, to delicate and sensitive electrical devices. See MINING.

Prostitution Promiscuous sexual intercourse for gain by a woman known as a prostitute. Regulated prostitution has existed since ancient times, and endures to-day in France and elsewhere. In Great Britain it is a punishable offence. See PROCURATION.

Protection In economics the supporting of home industries

against foreign competition by a discriminative tariff on imported goods. The opposite of "free trade," in which foreign goods are allowed to enter untaxed. Bound up with the former system is the practice of retaliating against the protective tariffs of another country by a similar measure directed against that country. Thus the tariff can be used as a weapon or a means of bargaining. Another means of fostering and protecting an industry is by granting a bounty or state subsidy on the commodity produced. See BOUNTY, FREE TRADE, TARIFF.

Protector Former English title of state. It was borne by one who governed during the minority or absence of the king. In 1216 the Earl of Pembroke was protector; in 1422, Humphrey, Duke of Gloucester; in 1547 the Duke of Somerset, and in 1549 Dudley, Duke of Northumberland. Cromwell (1653) and his son, Richard (1659), held the office of Lord Protector of the Commonwealth. See REGENT.

Protectorate Country whose foreign relations are under the control of another state. An example is the former Kenya Protectorate, including territories which belonged to the Sultan of Zanzibar, and were annexed to the British Crown in 1920. Existing British protectorates include those of Nyasaland, Swaziland, Somaliland and Uganda. See MANDATE; PROTECTOR.

Protein Group of highly complex organic substances containing carbon, hydrogen, oxygen, nitrogen, sulphur, * and sometimes phosphorus. The animal proteins include albumen of the egg, fibrin and globulin of the blood, casein of milk, creatine in muscle, etc. Vegetable proteins include globulins, albumins, glutens and prolamins in various seeds, also nucleo-proteins containing phosphorus in the cells of plants as well as animals.

Protestant Episcopal Church. Official title of the Episcopal Church of America in communion with the See of Canterbury, i.e., the Anglican Church in America. Though, as a result of the English colonisation clergy were sent out, there were for long no bishops. In 1784 Samuel Seabury was chosen bishop and came to England for consecration, although he had been previously consecrated by a Scottish bishop. The church was organised as a separate denomination in 1789. There are 7299 churches and 1,859,100 members.

Protestantism Faith of those who protest against the Church of Rome. The name Protestants was given to those followers of Luther who protested against the decrees of the second diet of Spire (1529). The effect of the decrees was that certain privileges were withdrawn and the Lutheran or reformed church, henceforth, was not countenanced. The name protestants came soon to be applied to any religious body which had separated from the Roman Church.

The main differences between Protestantism and the older Church are (a) as regards the attitude to the Scriptures; and (b) as to the sacraments and priesthood. To Protestants the Bible is the supreme and ultimate authority. The relation of the soul to God is direct and personal, needing no intermediary, such as a priest; and sacraments, though certain ones are recognised, are not essential to salvation. See ROMAN CATHOLIC CHURCH; REFORMATION.

Proteus In ancient Greek legend, a deity of the ocean, the son of Posei-

don. He dwelt in the Island of Pharos and tended the flocks of sea monsters belonging to his father. He was able to assume any shape, and could foretell the future.

Protocol Original draft of a deed or document. The term is applied in diplomacy to the preliminary draft of a treaty, etc. In Scots law a protocol means a record kept by a notary containing a copy of documents executed.

Protoplasm Living substance of all organisms, whether plant or animal. It contains carbon, hydrogen, oxygen, nitrogen, sulphur and phosphorus in very unstable combination, constant changes taking place while it is living. In its physical characters, protoplasm is a colourless, viscid, transparent or often granular substance consisting of a clear viscid portion (hyaloplasm) held in the meshes of a contractile network (spongoplasm), and embedded in it is the cell nucleus, the originating centre of all vital activities.

Protozoa Lowest division of the animal kingdom. Protozoa consist of unicellular organisms which in certain cases are aggregated to form colonies whose constituent cells are independent entities capable of reproducing their kind. Some protozoa are amoeboid, protruding temporary portions of protoplasm for locomotion; others are flagellate, having one or a few protoplasmic threads or flagella, or ciliate, when the threads are more numerous and vibratory. Most protozoa are aquatic, but one group is terrestrial.

Proust Marcel. French author. Born July 10, 1871, he was educated at the Lycée Condorcet, and began early to write stories. From 1902 he was in bad health, during which time he wrote *A la Recherche du Temps Perdu*, a series of 15 vols., the first of which, *Du côté de chez Swann*, was published in 1913. He died Nov. 13, 1922, and the last three volumes were published posthumously. These were *La Prisonnière* (1924), *Albertine Disparue* (1926) and *Le Temps Retrouvé* (1928).

Provence Former province of France. Since the Revolution it has been divided up into the départements of Basses-Alpes, Vaucluse, Var, and Bouches-du-Rhône. An ancient Roman province, it has many relics of that empire, particularly in the neighbourhood of Arles, its old capital. It was the cradle of the mediæval literature written in the langue d'oc, and produced some famous poets and troubadours. See FRANCO.

Proverbs Book of. Book of the Old Testament. A manual of practical life, placed after the devotional manual, the Psalms, it comprises: 1-9, a group of wise counsels; 10-22, an anthology of aphorisms in couplet form; 22-24, two collections of quatrains; 25-29, more couplets; 30-31, supplements ascribed to Agur and Lemuel, the latter embodying an acrostic describing the virtuous woman. Finally welded in the post-exilic age, the whole was attributed to Solomon in accordance with the literary usage of the time.

Province Wellesley Part of Penang colony, situated on the mainland. Great Britain annexed it in 1798. It has an area of 280 sq. m., and its principal products are rice, tobacco, sugar and spices. Prai is the capital and principal port. Population (with Penang), 250,000.

Provost In Scotland, the chief magistrate of a burgh. He is equal in rank to an English mayor. The provosts of Aberdeen, Dundee, Edinburgh, Glasgow and Perth are entitled Lord Provost. Another use of the term provost is for the head of a college.

Provost Marshal Army officer appointed when troops are in the field to be head of the military police. With his assistants he apprehends military offenders and is responsible for executing the decrees of courts-martial.

Proxy One who acts for another. The word also denotes the authority by virtue of which the power is delegated. The Companies Acts allow proxies to be used for voting at meetings of shareholders, and on such an occasion the person qualified to vote may thus appoint as his proxy another to act in his absence. A prescribed form must be used for the instrument, which must bear a 1d. stamp. Voting by proxy is allowed at bankruptcy proceedings.

Prudhoe Town of Northumberland, on the Tyne, 277 m. from London and 11 m. from Newcastle, on the L.N.E. Ry. It is in a coal-mining district. Pop. 8921.

Prune Dried fruit of several varieties of the cultivated plum-tree, especially the St. Julien. The finest, grown in the Loire valley, are called French plums. Grown also in Spain and Portugal, Bosnia, Germany, California and elsewhere, and eaten as a dessert or soaked and stewed, they have highly nutritive, demulcent and laxative properties.

Pruritus Skin affection, sometimes without visible eruption, marked by intense itching. It may be set up by diabetes, jaundice, dyspepsia, lice, etc., and is aggravated by scratching. When, in advancing years, the skin becomes thin and inelastic, pruritus senilis often occasions great suffering and sleeplessness.

Prussia Republic of Germany, the largest and most important state of the Reich. Formerly a kingdom, it grew gradually, its chief components being the Mark of Brandenburg and the State of the Teutonic Order in Prussia. The real founder of the state was the Elector Frederick William (1620-1688), but it was Frederick the Great (q.v.) who laid the foundations of Prussian greatness, by making Prussia a first-class military power. The high water mark of its supremacy as a monarchy was reached under William I. and Bismarck (1840-1890), and under William II. Prussia remained supreme till the declaration of the republic in 1918. Thereafter it was still considered the key state of the Reich. In the disturbed conditions of 1932 a temporary military dictatorship was set up by the von Papen government.

With an area of 115,833 sq. m., Prussia includes part of Schleswig-Holstein, Westphalia, Hanover, districts once part of Saxony, Pomerania and part of Silesia. The chief rivers are the Rhine, Oder, Elbe and Weser.

The republic is rich in minerals, especially coal and iron, and has many large manufacturing areas. Berlin is the capital. Westphalia is the chief industrial area and there are wide agricultural districts. Most of the Baltic and North Sea ports are in Prussia. There is much forest land and some trade in timber. Pop. 36,684,717.

EAST PRUSSIA. Province of Prussia, separated from it since 1918 by Polish territory and the free city of Danzig (q.v.). Only half the province is cultivable, the southern part con-

sisting of forest, moor, sand and bog. Agriculture is the chief occupation. Königsberg is the capital. Area 14,304 sq. m. Pop. 2,256,350.

Prussic Acid See HYDROCYANIC ACID.

Przemysl Town of Poland. A former Austrian fortress, on the San, it is 60 m. from Lwow, or Lemberg. Besieged by Russian forces early in the Great War, the pressure was relaxed owing to Austrian successes, but with the defeat of Austrian forces on the San in Nov. 1914, the investment was tightened up. Tamasz broke out in Dec., but was driven back after four days' fighting. Attempts at relief failed, and the besieged were threatened with famine. An unsuccessful sortie *en masse* was made on March 18, 1915. On March 22, Kusmanek, the commander, capitulated and Selivanoff entered Przemysl. Russia's triumph was shortlived. Austro-German troops stormed the forts on May 30-31, and three days later Przemysl was recaptured to stay in Austrian hands until the end of the war.

Psalms Book of. Book of the Old Testament. It comprises 150 "praisesongs" set to music, primarily for Temple use. In the Hebrew Bible it constitutes five books, each terminal psalm being in doxology form. Nearly half—73—were traditionally associated with David, and the whole anthology came to be ascribed to him. Mostly of post-exilic date, some clearly reflect the Maccabean age.

Psalter Book containing the Old Testament Psalms, especially when printed separately or paraphrased. The Anglican prayer-book psalter contains the Great Bible version of 1539; the Bible psalter, A.V. or R.V., is in extensive Free Church use. The metrical psalms, employed in Anglican worship for nearly two centuries, still persist in Scotland.

Psittacosis Disease of parrots, communicable by infected birds to man. Outbreaks occurred in England in 1930, which were accompanied by fatal results that year and subsequently, and led to the introduction by the Ministry of Health of an order prohibiting the importation of parrots into the country.

Psittacus African genus of parrots. The best-known is the grey parrot, *P. erythacus*, with ashy-grey plumage and short red tail, ranging from the Guinea coast to Lake Nyasa. Assembling in large flocks by day and feeding on palm-nuts and other fruits, it makes no nest, 2-4 eggs being laid in the bottom of a hole; both parents sit alternately. A familiar cage-bird in Europe for centuries, often long-lived, its remarkable power of repeating words is shared by both sexes.

Psoriasis Skin affection marked by flat dry patches covered with silvery-white scales. Its cause is unknown. It may appear in childhood and persist for years or disappear spontaneously, recurrence being common. The elbows and knees are first affected, and it may spread to the scalp and other regions.

Psyche In classical mythology a beautiful maiden, the favourite of Cupid. Cupid was sent to cause her to fall in love with the meanest of mortals, since Aphrodite was envious of her beauty. Cupid, however, became enamoured himself. Parted by the jealous wiles of her sisters, Psyche set out in search of her lover, finally, after long

travels, finding him again. She was made immortal and the lovers were reunited. See CUPID.

Psychical Research Systematic investigation into phenomena, regarded as appertaining to the spiritual sphere. In 1882 was founded the Society for Psychical Research, whose object is the investigation of apparitions, hauntings, clairvoyance, spiritualistic manifestations, etc. The society's address is 31 Tavistock Square, Bloomsbury, London, W.C.1.

Psycho-analysis Method devised by Sigmund Freud for exploring mental processes and investigating basic motives. It utilises dreams as a means of investigation, Freud's theory stating that these are a manifestation of wishes and desires buried in the unconscious, and generally have to do with repressed images, thoughts, etc., which assert themselves—often in an altered form—during sleep. Freud says that if such buried complexes can be brought to consciousness the mental conflicts between conscious and unconscious which produce neurosis and other troubles, can be resolved and the patient cured. According to the Freudians, the majority of buried complexes are related to suppressed sexual urges. See DREAM; FREUD; JUNG.

Psychology Science of mental phenomena. It investigates psychical processes or states and the conditions under which they arise. Its main methods of approach are introspection and inference. The first is "looking within," the second infers from the actions of others the mental processes giving occasion to them. Another line of study is the examination of the mental life of others, e.g., the child from infancy to adult life.

Social psychology deals with the mental phenomena of communities; industrial psychology with the special problems of factory life, etc.; comparative psychology deals with the behaviour of animals as compared with humans.

Behaviourism, a development of the latter, sought originally to explain behaviour as a product of reflexes—responses to stimuli— independent of consciousness.

Psychotherapy Treatment of disease by psychological means. Mainly employed for so-called functional nervous disorders now regarded as mental in origin, its technique includes suggestion, with or without hypnotic sleep, auto-suggestion as advocated by Coué, persuasion as practised by Dubois, and psychological analysis, including the special form, psycho-analysis, elaborated by Freud (q.v.).

Ptarmigan Game-bird of the grouse family (*Lagopus mutus*). About 15 in. long, it differs from the red grouse (q.v.) in having feathered feet and assuming nearly white winter plumage, with black outer tail-feathers. It ranges over Scottish moors above 2500 ft., laying 8-10 buff eggs in rough ground-nests; it becomes tame during the nesting season.

Pterodactyl Any member of the extinct order of flying lizards found fossil in mesozoic rocks from the Lower Liassic to the Upper Cretaceous in England, Europe and N. America. Long-tailed or tailless, large-headed, wide-mouthed, toothed or toothless, with flexible necks, they had smooth bat-like membranes extended by the enormously elongated "little finger" of the

fore-limb, the other fingers being short claws. They were more or less bird-like, with hollow bones, varying from the size of a sparrow to a 25-ft. wing-spread.

Ptolemy Name of a dynasty of Egyptian kings (305 B.C.-A.D. 40). The first, named Soter, a general under Alexander, became satrap of Egypt on Alexander's death in 323. In 305 he took the royal title. Notable for his building of the library and museum at Alexandria, he was a patron of literature and science. He abdicated in 285. His son and successor, Philadelphus (305-246 B.C.), also fostered the arts. Ptolemy III. (Euergetes), son of the last named, became king in 246. He made great conquests from Seleucus. The legitimate line ended in 80 B.C., when Ptolemy X. was assassinated, the crown going to a natural son of Soter II. (Ptolemy VIII.). He was named Auletes, or the flute player. Auletes' son, Philopator, succeeded in 51 B.C., reigning jointly with his sister, Cleopatra, as Ptolemy XII. On his death by drowning in 47 B.C., his younger brother became Ptolemy XIII. and reigned also with Cleopatra. The last two kings of the dynasty were son and grandson of Cleopatra, Ptolemy XV. dying in A.D. 40. See CLEOPATRA.

Ptolemy Egyptian astronomer and geographer, Claudius Ptolemaeus. He was at Alexandria, A.D. 127-51, and embodied his learning in a work of 13 volumes which became known by the Arabic name of *Almagest*. His system, the Ptolemaic, represented the earth as the fixed centre of the universe, the sun, moon, other planets and stars revolving about it from E. to W. in separate zones.

Ptomaine Basic substance formed in a nitrogenous organic tissue during putrefaction. Ptomaines of animal origin, formerly classed with vegetable poisonous alkaloids, pertain to various classes of chemical compounds, not necessarily noxious. In popular usage cases of poisoning by meat, etc., are loosely attributed to ptomaines, although some at least arise from disease-producing bacteria.

Public Health Term used for the health of the community as a whole. The various councils employ medical men, sanitary inspectors and others, and the Ministry of Health has a large staff. Their duties are concerned with infectious diseases, sanitation, supplies of food and drink, infant mortality and kindred matters. There is in London an Institute of Public Health at 37 Russell Square, W.C.1., which carries on educational work including research.

Public Prosecutor Legal official, in full the Director of Public Prosecutions. He takes action on the instructions of the Attorney-General, e.g., in 1929 the prosecution of C. G. Harty and his associates. Sometimes facts come to light in legal proceedings which make it desirable for the judge to send the papers to the Public Prosecutor, who has an office at 1 Richmond Terrace, Whitehall, London, S.W.

Public Trustee Public official appointed in 1900 to act as executor and trustee. Any one can name him as the executor and trustee of a will, thus obtaining the security of the State against fraud. He charges a regular scale of fees. The offices are in Kingsway, London, W.C.2., and there is a branch office in Parsonage Gardens, Manchester.

Publishing Business of preparing books for the public. The early publishers were also booksellers and in the 18th century books were published by a number of booksellers jointly, each taking a certain number. In the 19th century the two businesses became separate. Edinburgh became a great publishing centre, but after a time the pre-eminence, as far as Great Britain was concerned, passed to London. Leipzig is another city famous as a publishing centre and books are published in most of the university towns.

Some publishers confine themselves to a particular branch of literature, e.g., medical books, while others are general publishers. With the aid of readers their business is to decide which of the manuscripts submitted shall be published by them. They must then arrange for the printing of the books chosen, for their distribution to the trade and for the necessary publicity.

PUBLISHING AS A CAREER.—The staff whose duty it is to select and prepare manuscripts for the press is usually recruited from the universities; the production departments are usually reached after a period of apprenticeship.

The necessary qualifications are a wide general knowledge and some literary and artistic taste with potentialities for developing quickly a full knowledge of the technicalities of the trade and a sound judgment on the commercial value of contemporary literature. On the whole, the sales side offers the most promising monetary rewards.

Puccini Giacomo. Italian composer. Born Dec. 3, 1858, at Lucca, he studied at Milan and achieved his first success with the opera *Maçon Lescail* (1893) and *La Bohème* (1896) brought him fame. Of his other operas the two best known are *La Tosca* (1900) and *Madame Butterfly* (1904). In 1911 he came to London to superintend the production of his *Girl of the Golden West*. His last opera, *Turandot*, was produced in 1926 at Milan. He died Nov. 29, 1924.

Pudsey Borough of Yorkshire (W.R.). 6 m. from Leeds and 189 m. from London, by the L.N.E. Ry. Here are metal and textile works. Pop. (1931) 14,762.

Puerperal Fever Notifiable disease of childbirth caused by septic infection of the womb, etc. Formerly responsible for many deaths, it has been largely prevented by modern aseptic methods, and by the employment of trained midwives and maternity nurses. It is still a very serious problem, however, as there has been little decrease in its incidence in recent years. Fever is the warning sign, usually appearing about 3 days after childbirth, though it may occur much earlier.

Puff Adder Repulsive venomous viper (*Crotalus arietans*), distributed over nearly all Africa. The large flattened head and thick body, 4-5 ft. long, are covered with longitudinal rows of scales, mottled-brown above and greyish-white beneath. When irritated its indrawn breath, visibly swelling the body, gradually escapes. Bushmen smear the venom on their arrow-tips.

Puffin Genus of sea-birds of the auk family (*Fratercula*). The common puffin, *F. arctica*, 12 in. long, has black-and-white plumage, reddish feet, and brilliantly coloured bill, red, orange and bluish-grey, with horny sheath-like plates which moult

after the breeding season. Common on the rocky Atlantic coasts of Europe and the W. coasts of the British Islands and laying one mottled whitish egg, it winters in the Mediterranean region. Horned puffins and tufted puffins inhabit the N. Pacific.

Pug Dog Breed of toy dog. Of the mastiff group, suggesting a miniature bulldog, it was introduced from Holland and much esteemed throughout the 18th century. Victorian England produced the modern strains.

Pugin Augustus Welby Northmore. English architect. Born March 1, 1812, he became an architect, helped to prepare a large series of drawings of European Gothic buildings, and was enthusiastic for the revival of the Gothic style in England. He helped to design the new Houses of Parliament at Westminster, in 1837-43, and designed for the Roman Catholic Church the cathedral of St. George in Southwark, those at Nottingham, Killarney and elsewhere, as well as Farm Street Church, Berkeley Square, London. He died Sept. 14, 1852.

Pulborough Parish and market town of Sussex. It is on the Arundel road, 46 m. from London, near the confluence of the rivers Arun and Western Rother. Originally a Roman fortress on the road from Regnum to Londinium, it still bears traces of Roman occupation.

Pulham Market Village of Norfolk. It is 17 m. from Beccles and has an aerodrome with a mooring mast for airships. Near is Pulham St. Mary. Both villages are served by the L.N.E. Ry.

Pulley Mechanical device for lifting heavy objects. It consists of a grooved or flat rimmed wheel (sheave) free to rotate upon an axle or pin fixed in a block or frame and over which a cord passes to a weight. By securing one end of the cord to a beam and passing it around a system of pulleys a mechanical advantage is obtained in the decrease of the power required.

Pullman George Mortimer. American inventor. He was born in 1831 and entered the building trade. The first Pullman sleeping car was built in 1863, after which he designed the corridor train and the modern restaurant car. He died Oct. 19, 1897. In 1880 he founded a model town on the outskirts of Chicago for his employees, and called it Pullman. This was eventually made part of Chicago.

Pulpit (*L. pulpitum*, a stag). In ancient Rome a section of the stage reserved for the actors. From this followed the raised and enclosed structure used in the Christian church for the delivery of sermons. Pulpits are constructed of wood, usually carved and decorated, or stone or marble. Notable examples of marble are in the cathedral of Siena and the baptistry at Pisa. Of out-door pulpits an example is in the quadrangle of Magdalen College, Oxford.

Pulse Intermittent distention of the walls of an artery. It is caused by changes in blood pressure due to the heart's action. The sudden distention of the aorta when blood is expelled from the heart is conveyed in lessening degree to the arteries, and where an artery is near the surface, for example, the radial artery, the pulse can be easily felt, although its frequency varies with age, sex and other factors.

Puma (*Felis concolor*). Large American cat ranging from British Columbia to Patagonia. Called the American lion, panther or painter, catamount and cougar (*q.v.*), it measures $3\frac{1}{2}$ ft. with 2 ft. tail. The head is relatively small and maneless, with flesh-coloured nostrils, the tail dark-tipped and untufted, and the uniformly tawny fur darker along the back and paler beneath.

Pumice Light spongy form of volcanic glass. It is usually a greyish, froth-like scum formed on molten lava by the abundant escape of vapours and rapidly solidified. Mostly imported from the Lipari Islands, it is a useful polishing and smoothing stone; powdered and mixed with soap it makes a metal-polish.

Pump Machine used for raising water or for drawing out or forcing in air. The simple suction pump utilises air pressure and consists of a cylinder or barrel in which a piston freely moves by the action of a lever or handle, and is provided with a valve opening upwards in the piston head and another lower down in the barrel to ensure the pump being air tight. This type is used for wells and similar purposes. To overcome various mechanical difficulties a double-acting plunger pump or one having two buckets or piston heads is often employed. Rotary pumps worked by revolving wheels, discs or fans are used extensively, one type being the centrifugal pump, the principle involved being that of a reversed turbine action. In another type the liquid is acted upon by gas, steam or compressed air.

Pumpkin (*Cucurbita pepo*). Trailing annual herb of the gourd order, presumably indigenous to W. Asia. Each plant bears male and female flowers separately, the latter developing into the fruit, sometimes weighing 80 lb. and more. Cultivated in antiquity, and introduced into Tudor England, its varied forms, including vegetable marrows, are widely grown in continental Europe, N. America and elsewhere.

Punch Alcoholic beverage. In theory it should contain five ingredients, the origin of the name being the Hindu word meaning five. The particular brand of punch is decided by the spirit which is the main ingredient. It may be rum, whisky or brandy. To this are added spices, fruit juice, sugar and hot water.

Punch British journal. It was first published on June 17, 1841, and was announced as an illustrated weekly. The editor's chair was occupied by Mark Lemon for many years, and his successors have included Shirley Brooks, Sir Francis Burnand and Sir Owen Seaman. On the artistic side the staff has numbered such well-known names as Tenniel, Leech, Phil May, Claude Shepperson, Sir Bernard Partridge and many others. Its scope is social and political satire, literary and dramatic criticism and general humour. It has been invaluable to historians of the period during which it has been published.

Punchinello Traditional figure of the Commedia dell'Arte. He has something in common with Harlequin. He wears a black mask and a large nose, is a braggart and a rogue, with a rough, country wit. Punch of the Punch and Judy show derives his name from the same source, which probably means short and fat.

Punic Wars See CARTHAGE.

Punjab Province of India. It occupies the N.W. angle of the Northern plain. The name is derived from two Hindustani words meaning five rivers, the rivers in question being the Sutlej, Chenab, Ravi, Beas and Jhelum. It has an area of 99,222 sq. m. and a population of 23,580,851. The province is divided into five divisions: Amballa, Jullundur, Lahore, Rawalpindi and Multan. Agriculture is the main industry and the principal crops are wheat and barley.

Pupa Zoological term for the resting stage in the metamorphosis of many insects. At the end of the larval period the insect undergoes changes in external form, followed by moulting, the pupa taking on characters approaching those of the perfect insect. Most pupae are quiescent, but locomotion occurs in some aquatic types such as the gnats.

Pupil Circular opening in the middle of the eye immediately in front of the crystalline lens. It regulates the amount of light entering the eye, contracting in a strong light and enlarging in darkness or in focussing distant objects. These changes are also brought about by the action of drugs such as opium or belladonna, the former contracting and the latter dilating the pupil.

Purbeck Peninsula of Dorset. 12 m. long, it lies between Poole Harbour and the English Channel with the River Frome on the W. Swanage and Corfe Castle are on the peninsula, which is famous for its marble, really a limestone used for paving. It was once a royal forest. China clay is mined.

Purcell Henry. English composer. Born in London about 1658, he was a chorister at Westminster Abbey, and his early writings included overtures, anthems and masques. In 1680 he became organist at the Abbey and devoted himself to the composition of sacred music. His *Te Deum* and *Jubilate*, written in 1694, are outstanding. Other notable works are the masque of *Timon of Athens*, and the opera, *Dido and Aeneas*. Purcell died in London, Nov. 21, 1695, and was buried beneath the organ in Westminster Abbey.

Purchas Samuel. English writer. Born about 1575 at Thaxted, Essex, he was ordained in the Church of England, and from 1614-25 was rector at St. Martin's, Ludgate Hill, London. He died in 1626. While in London Purchas obtained some of Hakluyt's manuscripts and from these and other sources compiled *Purchas his Pilgrimes or Hakluytus Posthumus*, described as *A History of the World in Sea Voyages and Land Travels by Englishmen and others*. It was first published in 1626.

Purfleet Seaport of Essex. It stands on the Thames, 16 m. from London, on the L.M.S. Rly. It has a small harbour and facilities for storing oil.

Purgatory Place or state, according to Roman Catholic belief, in which souls after death are purified from venial sins and otherwise rendered fit for heaven. The Roman Catholic doctrine, formulated by Gregory the Great, and confirmed by the Council of Trent, recognises a purging by fire, which may be mitigated by the prayers and aims of the faithful. The Orthodox Eastern Church more vaguely recognises an intermediate state of tribulation. Protestant Reformers as a body rejected the doctrine.

Purification Religious term. It is used to denote the ritual cleansing enjoined by Judaism as well as other religions to secure the moral purification of the worshipper. In Judaism the four main types of ritual uncleanness demanding purification were connected with food, leprosy, childbirth and death. The Purification of the Virgin Mary (Luke ii, 22) is commemorated by the Church on Feb. 2.

Purim Jewish festival. Secular rather than religious, it commemorates the national deliverance from the plot of Haman (q.v.). It occurs about a month before the Passover, on 14th and 15th Adar, preceded by the Esther fast. Present-giving, formerly the burning of effigies of Haman, and other carnival incidents, contribute to the festivities.

Puritans Name given, in Elizabethan England to advanced Protestant clergy who advocated stricter manners and simpler worship than generally obtained after the severance from Rome. It came to embrace both tolerationists and men who sought to enforce their opinions and ways of life upon others, even to regulating their pleasures. The Puritan spirit long prevailed in New England.

Purley District of Surrey. It is 13 m. from London and has two stations, Purley and Purley Oaks, on the S. Rly. It forms part of the urban district of Coulsdon and Purley. See COULSDON.

Pus Thick yellowish-white fluid, abounding in dead white blood-corpuscles and disease germs. Produced by inflammation, it is discharged by abscesses, ulcers, granulated surfaces and open wounds.

Pusey Edward Douverie. English divine. Born at Pusey, in Berkshire, Aug. 22, 1800, the son of a landowner, he was ordained in the Church of England and later became Professor of Hebrew and canon of Christ Church, Oxford. He died Sept. 16, 1882. Pusey is regarded as the founder, or restorer, of the High Church movement in the Church of England. Its principles are contained in his sermons and writings including *The Doctrine of the Real Presence* and one of the *Tracts for the Times*.

Pusey House in St. Giles, Oxford, is a centre for students of theology.

Push Ball American game. Invented in 1894, it was originally played by two sides on a field about 150 yds. long by 50 yds. wide, with a large rubber ball 6 ft. in diameter. The object was to push this ball into a goal 18 ft. high by 20 ft. wide.

Pushkin Alexander Sergeyevitch. Russian poet. Born May 26, 1799, of aristocratic family, he was educated at Tsarskoye, Selo. He published poems, but his first notable success came in 1820 with *Ruslan and Lyudmila*. Boris Godunov was published in 1826, Poltava in 1828, and in 1832 came his autobiographical poem, *Eugene Onegin*. More than once his opinions caused clashes with the authorities. He died Jan. 29, 1837, from a wound received in a duel.

Putney District of London, in the borough of Wandsworth. It is situated on the Thames, and is largely residential, being served by the District Rly. and a suburban branch of the S. Rly. Putney Heath is a fine open space adjoining Wimbledon Common. Close to Putney Bridge station is the Hurlingham Club. Pop. 28,240.

Putty Plastic mixture of linseed oil and whiting used for glazing windows and filling holes in woodwork. Plasterers' putty is a fine cement of lime and water.

Putumayo River and territory of Colombia, S. America. The river, navigable for 700 m., is a tributary of the Amazon, which it joins near Sao Antonio. The territory belongs partly to Ecuador and partly to Peru. Mocoa is the capital.

Here, in 1909, official enquiries into the treatment of native labourers in the rubber plantations of a British company led to punishment of the offenders by the Peruvian government.

Pwllheli Borough, seaside resort and market town of Caernarvonshire. It is 21 m. from Caernarvon, 266 m. from London by the G.W. Rly., and is situated on Cardigan Bay. It has a good beach. There is fishing and a little shipping. Pop. (1931) 3599.

Pyæmia Form of septic poisoning. It is caused by the absorption of organisms into the blood stream from an open wound or infected organ. This is followed by the formation of numerous abscesses, accompanied by rigors, high temperature, profuse perspiration and a condition of extreme exhaustion.

Pygmalion In Greek mythology a king of Cyprus who fell in love with an ivory statue he had made. He prayed to Aphrodite to grant life to the statue. His prayer being granted he married the maiden. Another Pygmalion was brother of Dido, and slew her husband.

Pygmy Name for a human being naturally diminutive. It was first used by Homer for an Ethiopian folk apparently known through travellers' tales. The pygmy races nowadays comprise specifically Asiatic Negritos and African Negrillos, measuring 4 ft. 11 in. down to 3 ft. 6 in. and even lower. See DWARF, NEGRO.

Pylon Massive towers flanking the entrance to temples and other buildings in ancient Egypt. These towers, of greater height than the gateway, sloped upwards and their surfaces were covered with carved hieroglyphic inscriptions. They usually had a narrow staircase leading to the top.

To-day the name is given to supports of bracing wires in aeroplanes and to the structures carrying electric cables across country.

Pylorus Greek word, "gate-keeper," denoting the lower opening of the stomach. The stomach's muscular coats at the pyloric end are strengthened by thick muscular fibrous bands which contract while a meal is being digested, and at varying intervals relax, passing the semi-fluid chyme into the small intestine for further digestion. See DIGESTION.

Pym John. English statesman and patriot. Born at Brymore, Somerset, in 1684, he entered Parliament in 1614, assisted in Buckingham's impeachment in 1628, supported the Petition of Right in 1628, led the Short Parliament of 1640 and the impeachment of Strafford in that year, and shared in the Grand Remonstrance in 1641. He was one of the five members who escaped arrest by Charles I., was interested in colonisation and for many years schemed for the settlement of Connecticut. He died Dec. 8, 1643.

Pyorrhæa Discharge of pus, specifically from the gums surrounding the necks of the teeth. It is associated

with inflammation of the gums, softening of the bony socket and loosening of the teeth. The diseased condition is fostered by stagnation of the mouth's natural self-cleansing processes and the deposition of tartar. It may be avoided by systematic care of the teeth, including rubbing, brushing and scaling, the use of a mouth-wash, the due consumption of vegetables and fruit, etc.

Pyramids The. Ancient Egyptian monumental structures. They are built of stone with polygonal or square base and sloping sides meeting at the apex. Built as royal tombs, with a hollow chamber inside for the sarcophagus, about 70 have been discovered, and 18 identified. They stand in the desert a few miles east of Cairo. Among the most famous are the three great pyramids of Gizeh. A fourth pyramid was discovered here in 1932. The largest of all the pyramids is the pyramid of Cheops, dating from the 4th Dynasty. It measures 755 ft. on each side, is 451 ft. high and covers 13 acres. It is estimated that in its construction 6,000,000 tons of stone were used, and 100,000 men employed for 20 years, with mechanical aids which still remain a mystery.

Pyramids Game similar to billiards. It is played with 15 red balls placed at the top of the table in a triangle. The two players use the same white cue-ball alternately, the winner being the one who pockets the greater number of red balls.

Pyrenees Mountain range dividing France from Spain. It is 270 m. long and the highest point is Pichethon or Maladetta, 11,168 ft. Various minerals are found—silver, lead, copper, lignite, iron, etc.—and have been worked since classical times. The Garonne rises on the N. side, and the Aragon, Noguera, etc., on the S. Popular resorts in the Pyrenees include Pau, Lourdes and St. Jean de Luz, and other places of interest are the famous cirques, or great basins hollowed out by water.

Pyrethrum Gardeners' name for several composite perennial herbs of the chrysanthemum genus when ranked as a sub-genus. The common golden feather of gardens is a yellow-leaved variety of feverfew. An ornamental large-flowered garden species from Asia Minor, sometimes double, is akin to forms grown commercially in Dalmatia and Japan for the insect-killing pyrethrum powder.

Pyrheliometer Instrument for measuring the intensity of solar heat. In Angström's pyrheliometer the solar radiations are received on a blackened platinum strip connected with another similar strip heated by electricity. These are joined to a thermo-couple and the amount of current required to give equality of temperature is proportionate to the solar intensity.

Pyridine Colourless liquid obtained by fractional distillation of coal tar and bone tar. Its strong basic properties form a series of salts with acids and substitution products with halogens. It boils at 115 deg. C., and is unattacked by boiling nitric and chromic acids. It is used in the denaturing of alcohol.

Pyrites Minerals containing sulphide of iron (iron pyrites) or sulphides of copper and other metals. Iron pyrites is a brass-yellow hard mineral crystallising in cubic forms and important as a source of sulphuric acid and iron sulphate. Marcasite is a rhombic form of iron pyrites, paler in colour. Pyrrhotine

contains nickel, while mispickel contains arsenic. Copper pyrites, an imported copper ore, occurs in yellow tetragonal crystals or in massive form.

Pyrography Art of producing designs on wood by charring the surface with heated metallic points. In its simplest form it is called "poker-work" (q.v.).

Pyrometer Instrument for measuring high temperatures above those registered by ordinary thermometers especially with regard to the fusion of metals, the firing of bricks and pottery ware. One form, Seger's cones, consists of specially blended clay cones which soften at certain temperatures. Rods of porcelain, iron or platinum also are used for rough estimation of temperature, but electrical devices such as thermo-electric couples of platinum and iridium or palladium cased in porcelain give better results.

Pyrrrol Liquid constituent of coal tar and bone oil. It has the odour of chloroform, and is obtained by fractional distillation. It has secondary basic properties and from one of its derivatives, potassium-pyrrrol, by the action of iodine and an alkali, an antiseptic used in medicine known as iodoI is obtained.

Pytchley English hunt. It was founded about 1750 in Northamptonshire and the succeeding Earls Spencer have been closely associated with it. The country stretches from Market Harborough to Northampton, and the kennels are at Brigstock. In 1874 the Woodland Pytchley was established to hunt part of the Pytchley country.

Pythagoras Greek philosopher. Born at Samos about 582 B.C. he lived there for a time, but afterwards moved to Crotona. There about 539 he started a school and gathered round him an enthusiastic band of followers. The central idea of his philosophy was that number was the first principle of the universe, and on it depended the harmonies which keep the universe in ordered motion and create music and art. Pythagoras was also a mathematician, and is believed to have first discovered the principle laid down in Euclid's famous 47th proposition.

Pythias See DAMON.

Python In Greek mythology a serpent generated from the mud left by the deluge of Deucalion. It inhabited Mount Parnassus, where it was killed by Apollo. The Pythian games of Greece are supposed to have celebrated this victory.

Python Genus of non-venomous snakes of the boa family, inhabiting tropical Asia, Africa and Australia. Both jaws are fully toothed; the prey, up to small goats in size, is crushed by the snake's powerful coils and swallowed from the head downwards. Dwelling in trees near water, pythons include the largest of all snakes except anacondas. Averaging 10 to 20 ft., the netted python of Indo-China and the rock-snake of India and Ceylon sometimes attain 30 ft. The female incubates her eggs.

Pyx In Roman Catholic usage, a vessel employed, since the 9th century, for holding the consecrated bread of the Eucharist, when reserved for administration to the sick or for adoration. The name is also given to a chest holding representative gold and silver coins struck at the Royal Mint, awaiting the annual "trial of the pyx."

Q-BOAT Term used during the Great War for a ship designed to deceive and destroy hostile submarines. Disguised as merchant or fishing vessels, they were armed with hidden guns, and carried a fighting crew.

Quadragesima Latin word meaning "fortieth." It denotes the 40 days' Lenten fast before Easter. The first Sunday in Lent is called Quadragesima Sunday.

Quadrangle In plane geometry a closed figure contained by any four straight lines such as a rectangle, rhombus, etc., and particularly to one in which the sides and angles are equal. The term is also applied to a rectangular courtyard surrounded by buildings.

Quadrant Nautical instrument formerly used in navigation for determining altitudes by taking angles. It has been superseded by the sextant. It consisted of a graduated brass limit in the form of a quarter of a circle with usually a plumb-line to mark the zero during an observation.

Quadrature In mathematics, the process by which a square is found, exactly or approximately, having its area equal to that of a given figure. A famous example is that of "squaring the circle." In astronomy the term is applied to the position of a heavenly body in relation to another 90 degrees distant.

Quadrilateral Term in military science for a group of fortresses arranged more or less at the corners of a square for strategic purposes. A well-known example was the quadrilateral formed by the fortresses of Mantua and Peschiera on the Mincio, and Verona and Legnano on the Adige in N. Italy.

Quadrille Dance for four couples. The dancers stand in a square; hence the name, which comes from the Italian *squadra*, a square. The dance was introduced into the French ballets of the 18th century.

Quadroon Word of Spanish origin meaning "quarter-blooded," denoting the offspring of a mulatto and a white. In early Spanish America, before negro immigration began, it denoted the offspring of an American-Indian half-breed and a white; it is sometimes applied to other similar racial crossings: also in plants and animals.

Quaestor Official in ancient Rome. His early duties were to investigate cases of murder and to carry out sentences on the criminals. In republican times the duties of the office were chiefly financial, the quaestors being the keepers of the public treasury.

Quagga Racial variety of the zebra (*q.v.*). The light-red upper parts bore irregular chocolate-brown stripes, gradually fading to the hind-quarters, with white underparts. Roaming over S. African plains S. of the Vaal river in immense herds a century ago, it was indiscriminately slaughtered by the Boers for its hide, and for half a century has been extinct.

Quail Genus of small Old World game-birds of the pheasant family (*Coturnix*). The migratory quail (*C. communis*), $7\frac{1}{2}$ in. long, more or less regularly visiting Britain in spring, lays 7-12 blotched, creamy-white eggs in ground-hollows, sometimes remaining through the winter. Vast numbers, crossing the Mediterranean in spring and autumn, are netted for food in S. Europe.

Quake Grass (or Dodder Grass). Genus of perennial or annual grasses (*Brisa*), natives of temperate Europe, Asia and Africa. Slender-stalked, many flowered pyramidal clusters bear large compressed tremulous spikelets. The common quake grass, *B. media*, and a smaller one with tufted stems, grow wild in Britain. The tall *B. maritima* is much cultivated in gardens for decorative uses.

Quaker Colloquial name for a member of the Society of Friends. It was given to them in derision soon after the founding of the sect in the 17th century. See SOCIETY OF FRIENDS.

The quaker bird is another name for the sooty albatross.

Quamash Genus of perennial herbs of the lily order (*Camassia*), natives of N.W. America. The best known, *C. esculenta*, 1-3 ft. high, produces stout-stemmed spikes of 10-20 blue 2-in. flowers. Pure white and other forms are grown in gardens for house decoration; the buds open after the stems are cut. American-Indians use the bulbs for food.

Quantity Surveyor Surveyor who estimates for a builder quantities, measurements and costs from a plan prepared by an architect. He must have sufficient knowledge of architecture and the building trade to interpret plans and estimate the labour required.

Quantocks Range of hills in N. Somerset, extending for about 8 m. to the coast of the British Channel near Watchet. The highest point is 1260 ft. high.

Quantum Theory Theory in physics. Certain experimental results in the study of radiation could not be explained theoretically according to Newton's dynamical laws. Planck suggested that from such radiating bodies energy was transferred in separate quantities of definite magnitude, which he called "quanta." The development of this theory has led to the modern conception of atomic structure.

Quarantine Preventive detention, originally for 40 days, of ships, persons and goods, arriving from a country where certain infectious diseases prevailed. Of Venetian origin, directed specifically against plague during the Black Death, and later against cholera and yellow fever, the period and regulations varied. It is now mostly superseded by concerted international action, and in England by the British Public Health Act, 1904. Isolating imported dogs for a defined period, usually 6 months, is popularly called quarantine.

Quarry Bank Urban district of Staffordshire. A colliery centre, it is a mile from Dudley, and has iron-works. Pop. (1931) 8100.

Quarrying Excavation of stone from an open pit. The methods adopted vary chiefly according to the position and nature of the stone, but usually the excavation is made on the side of a hill. Where possible the planes of bedding or joint planes are used for removing the blocks but in some rocks where these do not exist, the use of wedges and blasting is employed to loosen the material.

Quart English measure of capacity. It is two pints and is the quarter of a gallon. In music the interval of a fourth is called a quart.

Quarter Measure of weight and capacity. It means a fourth part, and is used for the fourth part of a hundred-weight (28 lb.). Quarter is also used as a measure of wheat, a quarter of English wheat being 504 lb. As a measure of capacity it is equal to eight bushels. The fourth part of a year is also a quarter; and the periods of the moon are known as quarters.

Quarter Day Four days in the year on which rent and other liabilities are due. In England and Ireland they are March 25 (Lady Day), June 24, Sept. 29 and Dec. 25. In Scotland the quarter days are Feb. 2, May 15, Aug. 1 and Nov. 11.

Quartering In heraldry, the bearing of two or more coats-of-arms on a shield. It usually denotes a marriage. The arms are divided by horizontal and perpendicular lines. At one time in Austria and elsewhere, persons were not eligible for certain distinctions unless they could show 16 quarterings.

Quartermaster In the British Army, a quartermaster is an efficient warrant officer or N.C.O. under whose care are the stores, rations and equipment.

Naval quartermasters are petty officers who, in harbour, act as night-watchmen, and during the day see that the orders of the ship's company are carried out. At sea the quartermaster either takes the wheel himself, or supervises the seaman who is doing so.

Quarter Sessions In England a court of law held four times a year. Each county has one or more quarter sessions. The judges are the magistrates for the county, and the cases are those that are sent on to them from the courts of petty sessions. Certain cities and towns also have a court of quarter sessions which is presided over by the recorder.

Quarterstaff Weapon for hand-to-hand encounters popular in England down to Commonwealth times. A stout pole, 6½-8½ ft. long, sometimes iron-shod, was grasped by the left hand about the middle, and by the right a quarter from the lower end.

Quarto Page of a certain size; also a book of pages of that size. In it the sheets are folded into four, and its sign is 4to. To-day book publishers recognise as quarto: foolscap, 8½ in. × 6½ in.; crown, 10 in. × 7½ in.; demy, 11½ in. × 8 in.; royal, 12½ in. × 10 in.; and imperial, 15 in. × 11 in.

Quartz Widely distributed mineral consisting of silica and forming a constituent of sands and many rocks. It occurs in masses or as crystals forming hexagonal prisms and pyramids having a vitreous lustre and great hardness. Quartz is colour-

less (rock crystal) or white, yellow, brown or violet. Many varieties are cut as ornamental stones. Rock crystal is used for spectacle lenses; fused quartz for chemical and physical apparatus.

Quassia Bitter wood employed chiefly in medicine. Originally from a Surinam tree of the simaruba order, *Q. amara*. Surinam quassia being still used in France and Germany, the allied W. Indian bitterwood, *Picraena excelsa*, superseded it after 1809, and is known as Jamaica quassia. The infused chips provide a tonic, vermifuge and hop-substitute.

Quaternary In geology the group of strata of most recent age. It is sometimes referred to as Post Tertiary. The deposits vary much in character, and for the most part are unconsolidated. They include alluvium of present rivers and lakes; marine deposits; also cave deposits and glacial or drift formations.

Quaternions In mathematics a calculus used in solving various geometrical and dynamical problems in physics and engineering. From the point of view of geometry it concerns operations with vectors or quantities possessing magnitude and direction, and the changes of one vector into another. It was invented by Sir W. R. Hamilton about 1853.

Quatrain In poetry a stanza of four lines. The lines usually rhyme alternately as in the hymn by Isaac Watts, "O God, our help in ages past." The stanzas of Tennyson's "In Memoriam" are also called quatrains, although in these the first and the last lines rhyme, as do the two middle ones.

Quatre Bras Village of Belgium, 19 m. from Brussels. Here, on June 16, 1815, two days before the Battle of Waterloo, the Dutch and Belgian troops, part of Wellington's army, were attacked by the French under Ney. British troops advanced to assist their allies, and after a hard fight succeeded in beating back the French.

Quatrefoil Architectural term for a window or panel formed of four lobes; or segments of a circle projecting at a tangent from the inside of a circle and meeting at points or cusps.

Quaver Musical note equal to half a crotchet or one-eighth of a semi-breve. As a pulse-note it is symbolised by 8 in the lower half of a time-signature.

Quay Landing-place on the side of a river, harbour or docks, for receiving and discharging cargoes from ships. Usually a quay is provided with cranes and other appliances for handling goods and berthing vessels. Quays are constructed of stone or concrete with generally a facing of wooden piles.

Quebec City and seaport of the province of Quebec, Canada; the capital of the province. It stands on the north shore of the River St. Lawrence, 180 m. from Montreal, on a tableland rising to 333 ft. above the river. Founded by Champlain in 1608 on the site of an Indian settlement, Quebec was taken by the English in 1629, restored to the French in 1632, and held by them till its capture by Wolfe (q.v.) in 1759.

The lower town, with steep, winding streets, is the old town and the business quarter of the city. The upper, with wide streets, open spaces and modern buildings, contains dwelling houses, public buildings, parks, etc. Beyond the

citadel are the Plains of Abraham (q.v.) where Wolfe defeated Montcalm (q.v.). Notable buildings are the Château Frontenac Hotel, the citadel, the Roman Catholic Cathedral (1847), Laval University, the provincial Parliament House and the Hôtel Dieu, founded in 1639.

The city has a fine harbour, deep enough for the largest ships, with a government grain elevator. New wharves have been constructed at Wolfe's cove. It is served by both C.P. and C.N. Ry's., the former crossing the St. Lawrence by the great Quebec Bridge, completed in 1917. Pulp and paper manufacture is the chief industry, but machinery, cutlery, ropes, steel, etc., are also made. The city is well supplied with hydro-electric power. It sends four members to the federal House of Commons. Pop. (1931) 129,103.

Quebec Province of Canada. It covers 594,434 sq. m., on both sides of the River St. Lawrence. Part of it is fertile, but much is a vast and almost uninhabited tract of land between Hudson Bay and Labrador. Quebec is the capital, but Montreal is the largest city. The inhabitants are largely Roman Catholics of French descent.

Quebec, or Lower Canada, is the oldest settled part of the country. From 1791 to 1841, it was a province under British rule. In 1841 it was united with Upper Canada, and in 1867 it became a province of the Dominion. It is governed by a legislature of two houses with a ministry responsible to it. It sends 65 members to the House of Commons at Ottawa. In 1912 a great district in the N. called Ungava was added to the province, which also includes the island of Anticosti. It produces wheat, barley, milk and butter, as well as fish. The forests supply vast quantities of pulp for paper and its mines furnish the world with asbestos. Pop. (1931) 2,874,255.

Queen Official title of the wife of a reigning monarch. A queen has unique privileges, and has a household of her own. Her personal expenses are paid from the king's privy purse, and she is crowned with solemnities similar to those used for a king. The queen dowager is the widow of the deceased king, and retains most of her privileges. The queen mother is the mother of the reigning king, and a queen regnant is a sovereign princess, reigning in her own right, with all the powers of a king, whose husband is her subject. The only queen regnant at present in Europe is Queen Wilhelmina of Holland, who succeeded to the throne in 1890.

Queen Anne Style English architectural and artistic convention. In the decorative arts, restraint and simplicity are the dominant notes of the "Queen Anne Style," superseding the baroque extravagance which preceded it. Ornament was now deliberately subordinated to design. In furniture this tendency is specially marked, curvilinear principles being sedulously exploited with an unvalued sense of symmetrical balance. Contemporary silver shows a fine recognition of the value of plain surfaces. Architecture remained predominantly Palladian (See PALLADIO ANDREA), the Italian villa was the model for the English country house. But a vernacular style of building based on Jacobean tradition is no less characteristic of the period.

Queen Anne's Bounty Property belonging to the Church of England. At one time every person, on being appointed

to a living, paid a tenth of his first year's income to the pope. After the Reformation these sums were paid to the Crown. In 1704 Queen Anne handed over this income to the Church of England, and since then it has been known as Queen Anne's bounty and used to increase the value of poor livings. In time the income became smaller as first fruits ceased to be paid in many cases, and now the payments have almost ceased, a process helped by legislation passed in 1926. The fund, however, still possesses considerable capital, and has an office at 3 Dean's Yard, Westminster, London, S.W.

Queenborough Borough and seaport of Kent, on the Isle of Sheppey, where the River Swale falls into the Medway, 2 m. from Sheerness, on the S. Ry. There are chemical and cement industries and oyster fisheries. Pop. (1931) 2941.

Queen Charlotte Is. Group of islands off the coast of British Columbia, belonging to Canada, 130 m. from Vancouver. Graham Island is the largest. Coal and other minerals are mined and there is some fishing.

Queen Charlotte Sound separates the mainland of British Columbia from Vancouver Island.

Queen Mary Land District of Antarctica. It lies to the E. of Kaiser Wilhelm Land, and on it are the Denman and Northcliffe glaciers. It was explored and named by Sir Douglas Mawson in 1911-14.

Queensberry Marquess of. Scottish title held by the family of Douglas. In 1633 William Douglas, Lord Drumlanrig, was made Earl of Queensberry; and in 1682 his grandson, William, was made a marquess. In 1683 he was made a duke. In 1810, when the 4th Duke of Queensberry died, the dukedom and the estates passed to the Duke of Buccleuch, and the marquessate to Sir Charles Douglas, who became the 5th marquess. The 8th marquess, a noted sportsman, was responsible for the Queensberry Rules which govern boxing contests. The eldest son of the marquess is called Viscount Drumlanrig.

Queensbury Urban district of Yorkshire (W.R.), about 4½ m. E. of Bradford and 196 from London, on the L.N.E. Ry. Here are textile mills, collieries and stone quarries. Pop. (1931) 5763.

Queen's County Old name of the county in the Irish Free State now known as Leix (q.v.).

Queensferry Burgh and port of W. Lothian, on the S. shore of the Firth of Forth, 9 m. from Edinburgh, on the L.N.E. Ry. Here is one end of the Forth Bridge, and near are Dalmony House and Hopetoun House. Queensferry is so-called because the ferry here was used by Queen Margaret. Pop. (1931) 1798.

North Queensferry is a small watering place and fishing port on the N. or Fifeshire side of the Firth of Forth.

Queensland State of N.E. Australia. Originally part of New South Wales, it became a separate colony in 1859. It has a legislative assembly of 72 members, under a governor, lieutenant-governor and executive council of ministers. Tropical in the N., it is cooler in the S., where considerable agricultural development has taken place.

QUEENSTOWN

1033

QUINCUNX

The chief industry is stock raising, and the principal exports are wool, sugar, dairy products and meat. Much of its prosperity is due to the boring of artesian wells. Mining and forest produce are important.

Brisbane, the capital, is connected by rail with the chief centres and with New South Wales. Area, 670,500 sq. m. Pop. 842,000.

Queenstown Urban district, seaport and market town of Co. Cork, Irish Free State. Under the Free State the name has been changed to Cobh, a variant of the older name Cove of Cork. It is on an island in Cork Harbour, 13 m. from Cork, and is served by the G.S. Rlys. Queenstown is a yachting centre, and was a naval station. It is best-known as a calling place for the Atlantic liners, but has been less used in this capacity since the Great War. Pop. 7077.

Queenstown Town of Cape Province, S. Africa, 154 m. from E. London. The town is laid out in the shape of a hexagon with the market place in the centre. Wheat and wool are produced in the neighbourhood. Pop. 12,800.

Queenstown Town of Tasmania, about 110 m. N.W. of Hobart. Situated on Queen River, its industries are connected with copper-mining and timber-felling. Pop. (1931) 2590.

Quern Simple handmill for grinding grain. The earliest neolithic pattern, an oval grinder rubbed upon a saddle-shaped stone, developed into a pair of flat discs, the lower stone being rimmed, with a central pin passing through a funnel-shaped hole in the peg-rotated upper stone, through which the grain was poured. The water-mill superseded it.

Questionnaire Set of written questions sent out usually to obtain information about the cost of living, housing conditions and other social matters. The census paper may be described as a questionnaire and the method has been used by the B.B.C.

Quetta Capital of British Baluchistan. It came into prominence when Sir Robert Sandeman founded his Presidency here (1876), and grew in 25 years from a dilapidated group of mud buildings into a strong fortress and military centre. The Indian Staff College was opened here in 1907. The cantonment stands 5500 ft. above sea-level, and is the southernmost point in the N.W. frontier line of posts, being 536 m. by rail from Karachi. Pop. 49,001.

Quetzal Mexican name, "green-feather" for the resplendent trogon, *Pharomacrus mocinno*, a tropical picarian bird ranging from Guatemala to Panama. About magpie size, the crested male is handsomely plumaged in brilliant metallic green, with deep blood-red underparts; the middle two tail-coverts, prolonged 3 ft. beyond the tail, were formerly ruthlessly collected for European millinery. Frequently represented in ancient Maya art, the bird appears in the arms of the Guatemala republic, and gives its name to the local dollar.

Quiberon French town on the S. coast of Brittany, 22 m. E. of L'Orient. Two famous battles were fought near here. On Nov. 20, 1759, when the French were preparing an invasion of England, Hawke attacked and defeated the fleet under Conflans. In 1795 French emigrant Royalists

who had been landed here by a British fleet, were defeated here by the republican leader, Hoche.

Quicklime Commercial name for calcium oxide obtained by calcining chalk or limestone, the carbon dioxide being driven off in the process. It is very infusible, but when moistened crumbles to a white powder (slaked lime), giving off considerable heat. It is a valuable dressing for clay soils and is used in making mortar and cements. Slaked or hydrated lime is employed in making lime-water and in tanning and sugar industries. Lime is used also for purifying coal gas and sewage.

Quicksand Bed* of loose fine sand particles often mixed with clay or calcium carbonate, and saturated with water. Quicksands occur usually at river mouths or along* the seashore, and in some glacial deposits.

Quicksilver Common English name for metallic mercury on account of its extreme mobility and resemblance to the colour of silver. See MERCURY.

Quietism Religious movement of a mystical character. It swept over France, Italy and Spain during the 17th century. Its most famous devotees were Fénelon and Madame Guyon. Quietism stressed the importance in religious experience of a purely passive state of contemplation, which had no place for the positive exercise of thought and will.

Quiller-Couch Sir Arthur Thomas. English writer. He was born in Cornwall, Nov. 21, 1863, and educated at Clifton and Trinity College, Oxford, where he became a lecturer in classics. He wrote *Dead Man's Rock* while there. After doing journalistic work in London he settled in Fowey, and wrote a number of *Cornish Tales* and several volumes of critical articles, including *Studies in Literature* in three series. He published several volumes of poetry, and is famous for his anthologies of English verse, among them *The Golden Pomp* and *The Oxford Book of English Verse*; and for his lectures as Professor of English Literature at Cambridge, a post to which he was appointed in 1912. He was knighted in 1910, and is familiar as "Q."

Quillwort Genus of stemless rush-like vascular cryptogams, *Isaetes*, chiefly found in N. temperate and warm regions. Merlin's grass, *I. lacustris*, inhabiting subalpine lake bottoms in Britain and elsewhere, has a filbert-sized corn producing a tuft of 10-20 rigid awl-shaped tubular leaves whose bases partially sheathe the spore-capsules. A sub-aquatic species common in S. Europe inhabits Guernsey marshlands.

Quince Genus of shrubs and small trees of the rose order, *Cydonia*, akin to the pear, indigenous to Asia. The common quince, *C. vulgaris*, of Persian origin, anciently cultivated in the Levant, and introduced into Tudor England, bears yellow astrigent pear shaped or apple shaped fruits, used for flavouring other cooked fruits or for table jellies. See JAPONICA.

Quincunx Arrangement of five objects so placed as to occupy each corner of a square or oblong, with one in the middle. It is used commonly for the spacing of trees in an orchard so that the trees in one row are opposite the spaces between those in the next row.

Quinine Chief alkaloid contained in cinchona bark. White, inodorous and bitter tasting crystalline salts, more or less water soluble, especially sulphate, hydrochloride and hydrobromide, are used medicinally as a tonic, sometimes combined with others, for allaying neuralgia, and pre-eminently for treating malaria. The ammoniated tincture is a favourite household remedy for mild feverish attacks. See PERUVIAN BARK.

Quinoa Annual herb of the goosefoot order, *Chenopodium quinoa*, indigenous to the Pacific slopes of the Andes. Its clusters of minute green flowers produce small, rounded, flattened fruits whose nutritious meal is made locally into porridge and cakes. It is sometimes cultivated in Great Britain for its leaves, a good spinach substitute.

Quinquagesima Latin word meaning "fiftieth." It denotes the Sunday next before Ash Wednesday, once called Shrove Sunday. It occurs 50 days before Low Sunday.

Quinsy Acute tonsillitis or inflammation of the tonsils of the throat with suppuration of the tonsils. Treatment includes gargling with hot antiseptic fluids and applications of hot fomentations. Incision is frequently necessary.

Quintain Upright post surmounted by a crossbeam, used for knightly and popular exercise throughout mediaeval Europe. It was either a fixed target against which horsemen and footmen broke a lance or pole, or rotated on a pivot, one end provided with a sandbag or other device for striking the unskilful tilter behind.

Quintal Measure of weight, originally denoting 100 libras, as in pre-revolutionary France, and still surviving in Spain. It also denotes various standards in Portugal, Greece, Egypt and some parts of Spanish America. The metric quintal, weighing 100 kilograms or 220 lb., is the common unit of measurement for grain, etc., in metric using countries.

Quirinal One of the seven hills of Rome. It lies to the N.E. and the name is taken from Cures, once a town of the Sabines. The King of Italy has a palace here, and the Quirinal is used as a synonym for his court.

Quito Capital city of Ecuador. Situated about 114 m. from the Pacific coast, it occupies a basin in the Andes about 9350 ft. above sea-level. The buildings, mainly of sun-dried brick, are of a Spanish type, and include the Jesuits' church with a finely carved façade, the cathedral and the government palace. The city has a university and eleven monastic institutions, the convent of San Francisco being among the largest in the world. Exports include hides and forest products. Wood and ivory carving and gold and silver work reach a high standard. The city has two broadcasting stations (52.5 and 47 M.).

Quit Rent Yearly payment, formerly made by certain classes of tenants on English manors. It was so-called because it freed the tenant from all

other dues. A perpetual rent charge is called a quit rent in the United States.

Quixote Don. Hero of Cervantes' mock-heroic romance, *History of the Renowned Don Quixote de la Mancha* (1605-15). He figures in the story as a misguided devotee of chivalry, who imagines himself to be a knight-errant and goes forth on his adventures, clad in a suit of home-made armour, riding his battered steed, Rosinante, and attended by his squire, Sancho Panza. He has become a universal figure, representing the type whose lofty idealism fails to achieve success in a world which does not share those ideals.

Quoin Corner stone at the angle of the wall of a building, especially in later Saxon work, where flat slabs or quoins alternate with long vertical blocks. The term is applied also in printing to a blunt wedge used to secure the type in a forme.

Quoits Pastime consisting in throwing flattened iron rings at a distant mark. Patronised by curling clubs in Scotland, Canada and the U.S.A., and by Midland and Lancashire working-men's quoiting clubs it is played on two "ends" 18 yards apart each having a metal pin or hob driven in. Each player throws two 9-lb. quoits from end to end, seeking to ring the hob or to pitch nearest; play is then reversed, as in bowls. Deck-quoits are played with rope-rings.

Quorn English hunt. The name is taken from the village of Quorndon in Leicestershire. The hunt was established in the 18th century, and some of the most famous hunting men, among them Hugo Meynell and the Earl of Lonsdale, have been among its masters. It is regarded as the oldest in England. The kennels are at Barrow-on-Soar and Melton Mowbray is the chief centre.

Quorndon Urban district of Leicester. It is 2 m. from Loughborough, and is a hunting centre. Pop. (1931) 2603.

Quorum Minimum number of persons necessary to constitute a meeting. In public companies and societies the articles of association or the rules, state the number necessary for a quorum. In the House of Lords it is 30, and in the House of Commons 40. In some legislatures, notably the Congress of the United States, a quorum is a majority of the members. The word is Latin for "of whom."

Quota Commercial term. In Great Britain it refers to a proportion, at present 15 per cent., of home grown wheat to be used by millers under the terms of the Wheat Act in making flour. The farmer subsequently receives the difference between the current price for wheat and a standard, at present 45/- per qr., fixed for a year.

In post-war commercial treaties it signifies also quantities of essential commodities for which export and import licenses are issued respectively by the countries concerned. Immigration quotas, based on the acceptability of the nationals of certain races as immigrants, have been established in the U.S.A. and elsewhere. Great Britain has a film quota, establishing the proportion of British films which must be shown.

RA Name of the sun god of the Egyptians. He was represented with the head of a hawk, and as crossing the sky in a ship. Splendid temples were erected in his honour. The chief seat of his worship was Heliopolis (On) in the Delta. From the fifth dynasty the name Ra was included in the title of each Egyptian king.

Rabbi Honorary title for the Jewish scribes after Herod's day. Applied to learned persons pronouncing on questions of law and ritual, the New Testament mentions Christ as so addressed by his disciples and the common people. It designates modern Jewish clergy, and sometimes by courtesy eminent Jewish scholars. The word is Hebrew for "my master."

Rabbit (*Oryctolagus cuniculus*). Burrowing rodent of the hare family. The wild form is smaller, greyer and less speedy than the hare, and breeds abundantly in collective warrens. Naturalised in England and elsewhere, notably in Australia, it is esteemed for food, its fur being felted for hats and disguised as coneys, used by furriers for inexpensive clothing. Domestication has wrought remarkable changes in weight, form and colour, e.g., the Angora and lop-eared breeds. Game-laws regulate rabbit-shooting, but impose no close time.

Rabelais François. French author. He was born at Chinon about 1483, and was successively a Franciscan, a Benedictine monk, a teacher at Montpeller, a professor of anatomy, and a priest at Meudon. His friendship with the Cardinal, Jean du Bellay, had a great influence on his life, and he went to Rome at different times to visit his friend. He is the author of *Gargantua*, and of *Pantagruel*, books of monumental interest written between 1532-64. They are original and powerful in style, and underneath the crudities and obscenities there is a great love of humanity, and a passion for justice and true culture. He died on April 9, 1553.

Rabies Infectious disease due to a micro-organism, causing rabid madness in numerous mammals, including dogs, cats, wolves, horses, etc., and communicable in the saliva by a bite. See HYDROPHOBIA.

Raby Castle Residence of Lord Barnard. It is in Durham, 5 m. from Barnard Castle, and dates in the main from the 16th century. A splendid pile, it was the seat of the Duke of Cleveland until that title became extinct in 1891.

Raccoon (*Procyon*). Genus of American carnivorous mammals related to bears. The common greyish N. American tree-dwelling "coon" *P. lotor*, 24 in. long with 10-in. ringed tail, feeds by night, habitually dipping its prey into water before eating. Its flesh is edible, and its fur much used for coonskin caps. A larger crab-eating species inhabits S. America.

Race Group of persons, animals or plants of common ancestry. The word may denote all mankind, a primary division, e.g., the yellow race, or a smaller

ethnic group, e.g., Jewish. The word also denotes breeds or strains greater or less than a species, e.g., canine, black-faced.

Raceme Botanical name for the form of flowering in which the blossoms are borne in a cluster with each flower on a short and equal lateral pedicel attached to a central stem, as in the currant.

Rachel Biblical character. A daughter of Laban, she became the wife of Jacob after he had served Laban for her two periods of seven years, and had married her elder sister, Leah. She had two sons, Joseph and Benjamin, and she died when the latter was born.

Rachmaninoff Sergei Vassilievitch. Russian composer and pianist. He was born at Nini-Novgorod on April 2, 1873. He received his musical education at the St. Petersburg and Moscow Conservatoires, and won a gold medal, with his opera *Aleko* in 1892. He made several concert tours, and in 1903 was conductor of the Imperial Opera. He conducted the Moscow Philharmonic Symphony Orchestra, 1912-13.

After the Russian revolution he escaped to Sweden, and eventually settled in America. He has written operas, symphonies and piano concertos, and many smaller piano works, of which the *Prelude in C sharp minor* is most famous.

Racine Jean. French dramatist. He was born at La Ferté-Milon (Aisne), in Dec. 1639, and went to the Solitaires' School at Port Royal. He began to write tragic plays in 1664, with *La Thébaïde* and *Alexandre* in 1665, followed by *Andromaque* in 1667. His best-known play is *Phèdre*, which, owing to his enmities, was a commercial failure, and he returned to the influence of Port Royal. In 1689, when Madame de Maintenon asked him to write a play for her girls' school at St. Cyr, he wrote *Esther*, and in 1691, *Athalie*. He died on April 21, 1699.

Racketeering American expression arising out of the development of "gangs," and applied to the practice of gangsters, who, by means of threats of violence which they are able, and quite prepared, to carry out, extort money from those trading legitimately. In return, the traders are allowed to carry on business more or less peacefully, even receiving a measure of protection.

Rackets Ball game played on walled-in courts, very similar to flies courts. The game, played by two or four persons, consists in hitting the ball against the end wall, above a certain line, with the racket, which differs from the tennis racket in being much lighter and having a round head about 8 in. in diameter. The scoring is similar to that in flies, but the game is very much faster.

Rackham Arthur. English artist. He was born Sept. 19, 1867, and educated at the City of London School and Lambeth School of Art. He is best known as an illustrator, in which department his delicately fantastic work is familiar to all book-lovers.

Radcliffe Market town and urban district of Lancashire. It is

8 m. N.W. of Manchester, and is 194 from London by the L.M.S. Rly. In a coal mining district, the town stands on the Irwell, and has cotton and associated industries and chemical works. Pop. (1931), 24,874.

Radcliffe John. English physician, Fellow of Lincoln College, Oxford, and M.P. Born at Wakefield, in 1650, he studied medicine at Oxford. He then began to practise, and having settled in London, was physician to William III., and the two queens, Mary and Anne. He died at Carshalton, Nov. 1, 1714.

Radcliffe left his money to Oxford University where his name is perpetuated in several ways. The university has its **Radcliffe Library**, and the city the **Radcliffe Infirmary**. There are Radcliffe travelling fellowships for students of medicine. The university observatory is called the **Radcliffe Observatory**, because it was built from money left by Radcliffe. It was erected between 1772 and 1795.

Radiation Term applied to the different forms of energy given off from substances and transmitted through space. These radiations include light, heat, X-rays and the various emanations emitted spontaneously from radio-active substances.

According to Planck's Quantum Theory, radiation is not a continuous wave process, but a discontinuous one in which separate minute units of energy are emitted in pulsations, the amount of energy in each unit or quantum being dependent upon the frequency of the radiation.

Radical Term in chemistry applied to a group of atoms of several elements that enter into the formation of compounds, and pass from one compound to another without disintegration, but do not exist as a separate entity. Examples of radicals are the hydrocarbon radicals, methyl, acetyl and ethyl, also ammonium and cyanogen.

Radical Name of a political party. It came into use late in the 18th or early in the 19th century, and was applied to those who believed in radical reforms. The radicals became a wing of the Liberal Party, and as such they remained until the Great War, when their place was taken by the Socialists. A radical may be described as more advanced than a liberal, but less so than a socialist. In some matters, however, individual liberty for instance, the radical and the socialist ideas are opposed.

Radio-activity Quality of emitting spontaneously radiations having great penetrating power. Substances such as radium, uranium, thorium, actinium and their compounds, emit radiations having the power of penetrating opaque objects, and of acting upon a photographic plate in the dark; also of ionising gases and producing luminosity in certain substances.

Becquerel, in 1896, observed the effect of uranium salts upon a photographic plate, and these investigations were followed by the discovery of radium, actinium and the radio-active properties of thorium. Three types of radiations are emitted, known as alpha rays or positively charged helium atoms, beta rays or negatively charged particles, and gamma rays or electro-magnetic impulses.

Radiograph Term given to an image of an object obtained by means of the X-rays, which have the power

of penetrating certain substances opaque to light, but are stopped by other dense substances such as the heavy metals. A radiograph of the hand will show the bones and an embedded metal as distinct shadows.

Radiology Study and use of X-rays in medicine. In 1895 Röntgen discovered that X-rays passing through human tissues could be used photographically to differentiate between easily penetrable tissues and bone. This has proved of exceptional benefit in many branches of medical science, while the action of the rays on certain tissues has formed the basis of radio-therapy.

Radiometer Instrument invented by Sir William Crookes for measuring the radiant energy of light and heat. It consists essentially of four thin glass arms, or discs of glass or mica on aluminium arms, placed horizontally and pivoted so as to rotate freely in a partially exhausted glass vessel. The rate of movement indicates the strength of the radiation.

Radish (*Raphanus*). Genus of annual or biennial cruciferous herbs, natives of Europe and temperate Asia. Cultivated anciently in the Mediterranean region, and introduced into Tudor England, the garden radish, *R. sativus*, has an agreeably pungent fleshy root, long and tapering, olive-shaped or turnip-shaped, usually whitish or reddish, and is eaten uncooked as salad.

Radium Radio-active element having the symbol Ra and atomic weight 225.95. It was discovered in 1898 by Madame Curie. It is silver-white in colour, but rapidly decomposes in the air into the hydroxide, and is present in pitchblende, carnotite and other ores associated with uranium from which it is derived by atomic disintegration. Radium compounds are used extensively in surgery in the treatment of certain diseases and commercially in luminous paints for watch dials, etc.

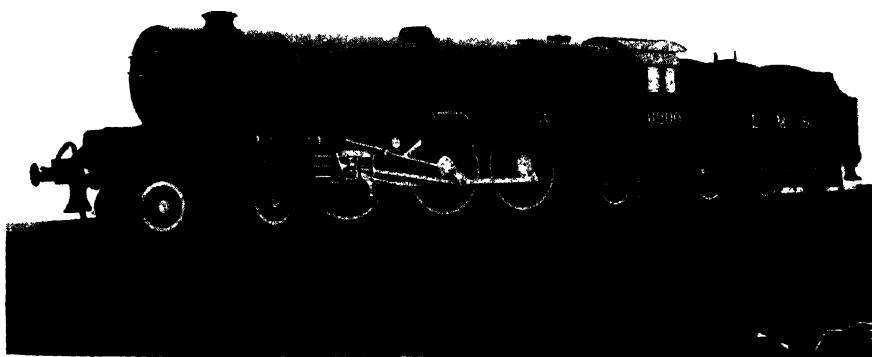
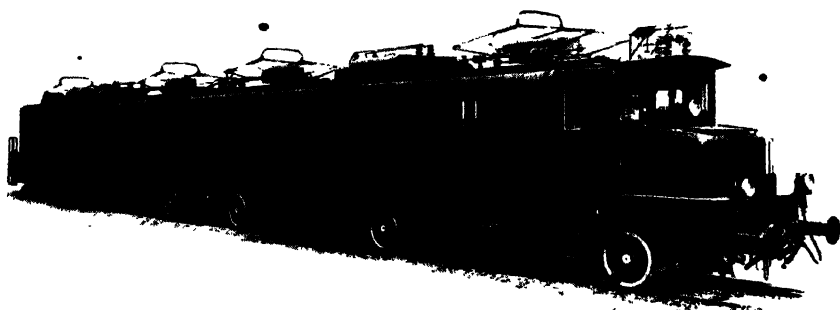
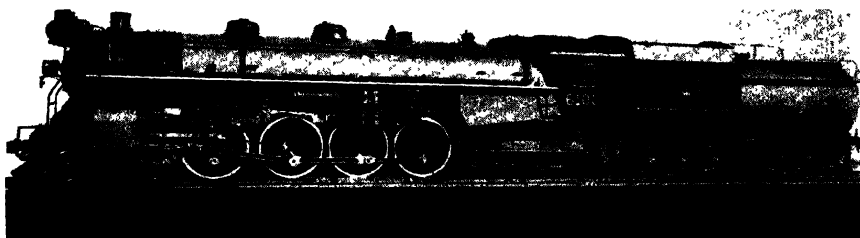
RADIUM THERAPY. Methods of healing in which radio-active substances are employed. Two main methods are in use: (1) the introduction of such bodies into the blood, and (2) local application of radiation. The curative action of radium emanations may be derived from radium or its product radon. The latter is applied as an inhalation or taken in solution. With the former, a minute quantity of a radium salt enclosed in a platinum tube or needle is used. It is successful with many malignant growths but not all forms of cancer.

Radius Term in geometry for a straight line drawn from the centre of a circle to the circumference and equal to half the diameter. A radius vector is a straight line drawn from any point in the curve of an ellipse to a focus.

In anatomy the radius is the smaller of the two bones in the forearm. Its slightly curved shaft is articulated to the wrist by its larger head, and to the elbow by a button-shaped head having a rotatory movement.

Radlett Town of Hertfordshire. It is 15 m. from London, on the L.M.S. Rly. It is a residential district for Londoners. Some industries have been established here.

Radley Village of Berkshire. It is on the Thames, 4 m. from Oxford, on the G.W. Rly. The college, founded in 1847, is a public school with accommodation for about 200 boys; it has a fine chapel and a memorial gateway. Pop. 1074.



RAILWAY LOCOMOTIVES.—*Top*—The latest Canadian National Railway's Express Engine. *Centre*—The world's most powerful railway engine—the Swiss Federal Railway's 7500 h.p. all-electric locomotive. *Bottom*—“The Princess Royal,” the L.M.S. Railway's latest addition to the famous London-Glasgow “Royal Scot” express service.

[C.N.R. Brown Bovers. L.M.S.]

Radnor Village of Radnorshire. It is 7 m. from Presteigne, on the little River Somergill. There are ruins of a castle and a guildhall, as the place was a chartered town from 1561 to 1583. It is called New Radnor to distinguish it from Old Radnor, a village about 3 m. away.

The title of Earl of Radnor was borne by the family of Robertes from 1679 to 1757. In 1765 William Bouverie, 2nd Viscount Folkestone, a wealthy Huguenot, was created Earl of Radnor. His son, Jacob, took the name of Pleydell-Bouverie and the title is still held by his descendant. The estates are now the property of Viscount Clifden, a kinsman. The seat of the present earl is Longford Castle, near Salisbury, and his eldest son is called Viscount Folkestone.

Radnorshire County of Wales. The smallest in the land, it covers 471 sq. m. Presteigne is the county town; other places are Rhayader, Llandrindod Wells and Knighton. The rivers are the Wye and its tributaries, including the Elan, the Arrow and the Ithon. In the centre is the district called Radnor Forest. The chief occupation is farming, and sheep-rearing is an important industry. Pop. (1931) 21,324.

Radstock Urban district and market town of Somerset. It is 16 m. from Bristol on the G.W. Rly. It is the centre of the Somerset coalfield, and the chief industry is coal mining. Pop. (1931) 3622.

Raeburn Sir Henry. Scottish portrait painter. He was born at Stockbridge, Edinburgh, on March 4, 1756. He was first apprenticed to a goldsmith, but taught himself to paint, and was helped by David Martin, a leading Edinburgh portrait painter. He painted the Countess Leslie, and married her; and together they visited Rome, where he studied for two years. Raeburn was the chief of a virile school of painting then growing up in Scotland, and was made R.A. in 1815, and knighted in 1822. His best-known portraits are those of Lord Newton, Dr. Alexander Adam, his wife and Mrs. Robert Bell. He died on July 8, 1823.

Raemakers Louis. Dutch cartoonist. He was born at Roermond, Holland, on April 6, 1869, educated in Amsterdam and Brussels, and at the outset of his career, painted portraits, posters and landscapes. He drew his first political cartoon in 1908, but his fame was made by his anti-German cartoons, during and after the Great War.

Raffia Work Handicraft comprising useful and ornamental articles made with the split leaves of raphia palms and similar bast-like substances. Used for manual training, recreation and profit-making in blind institutions, kindergarten schools, military hospitals, etc., the material, generally dyed, is fashioned like straw-plait into bags and hats, or worked on frames into baskets, boxes, etc.

Raffles Sir Stamford. English administrator. He was born at sea off Jamaica, July 5, 1781. From a clerkship in the East India Company he rose to the appointment of lieutenant-governor of Java on the conquest of that island by Lord Minto in 1811. He held that post till 1816 and was lieutenant-governor of Sumatra from 1818-23, being responsible for the purchase of Singapore (1819). He died July 5, 1826.

Rafter Term in architecture for an inclined beam forming part of the support of the roof of a building. In the Middle Ages rafters were of oak, but in the 17th century foreign deal came into common use. Open timber roofs with various methods of arranging the rafters were characteristic of mediæval English architecture.

Ragged Robin Perennial crimson flowered wild plant (*Lychnis flos-cuculi*) of the pink family. It is a slender herb growing about 1½ ft. high and common in Gt. Britain.

Ragged Schools Name given to schools formerly existing in Great Britain as voluntary agencies for the education of destitute children. Their originator was John Pounds, a Portsmouth shoemaker, who for 20 years prior to his death in 1839, taught a number of needy children as he sat at his work. The work of the Ragged School Union is now carried on by the Shaftesbury Society.

Raglan Village of Monmouthshire. It is 7 m. from Monmouth, on the G.W. Rly. It is famous for its castle, now in ruins. During the Civil War it was defended by the Marquess of Worcester on behalf of Charles I.

Raglan Fitzroy James Henry Somerset, Lord. British soldier. He was born on Sept. 30, 1788. In 1807 he served on Wellington's staff in the Copenhagen expedition and in 1812 he was his military secretary in the Peninsular War. He lost his right arm at Waterloo. In 1816 he was Secretary to the Embassy at Paris, and sat for Truro in Parliament in 1818 and 1826, being created a baron in 1827. He was Commander-in-Chief in the Crimean War, and was blamed unjustly for the soldiers' privations in 1854-55. He died June 28, 1855.

Ragout French dish. It consists of meat stewed with herbs and vegetables, and seasoned to taste. The word comes from the Fr. *ragouter*, to restore the appetite.

Ragwort Perennial composite herb (*Senecio jacobaea*). The stems, 1-4 ft. high, with much-divided leaves, bear dense clusters of bright-yellow rayed flower-heads.

Raikes Robert. Founder of Sunday schools. He was born at Gloucester, Sept. 14, 1735, the son of the printer and proprietor of the *Gloucester Journal*, and carried on his father's business. In 1780 he started a Sunday school, which taught the poor children of the town to read and to learn the catechism. The Sunday School movement attracted great attention, and spread over England in Raikes' lifetime. He died April 5, 1811.

Rail Name originally denoting two related shore-birds, land-rail and water-rail, now extended to all members of the numerous and cosmopolitan rail family. The common European water-rail (*Rallus aquaticus*), 11½ in. long, short-tailed and long-legged, is distinguishable from the land-rail by its long, red bill. It haunts British marshlands, sometimes migrating southwards for the winter, and lays 7-10 spotted creamy-white eggs in reed-built nests.

Railway Permanent road, or way, on which locomotives and the rolling stock drawn by them can travel. A railway or railroad has a line or lines of rails fixed to ties or sleepers, and laid to gauge,

usually on a levelled or graded roadbed. The power employed is either steam or electricity.

The first railways were rough constructions designed only for carrying coal wagons drawn by horses or ponies. The invention of steam made it possible for the steam locomotive to replace the horse, and, this having been introduced in 1804, the next step was to lay lines that could be used for purposes other than the cartage of coal.

The first railway line was opened between Stockton and Darlington in 1825, and during the next 50 years many thousands of miles were laid all over the world. Steadily the lines were improved and greater speeds were attained. The locomotives increased in size and power and the accommodation for the passengers passed from rude open wagons to comfortable carriages, with dining and other accessories, that are reminiscent of a good hotel. Increased engineering skill made it possible to drive tracks through mountains and over marshes until Europe was covered with a network of railways, the great Continents of Asia and America were crossed by them, lines crossed the Andes, and in Africa reached, with but a single gap, from Cairo to the Cape. To meet the traffic problem of the great cities overhead and underground railways were made, and lines serving the London suburbs and other districts, where short distance traffic was necessary, were electrified.

In Great Britain the large number of railway companies that arose in the 19th century were gradually reduced until there was only a small number, most of them large organisations with headquarters in London, such as the Midland, Great Western, Great Northern, London and North Western and Great Eastern. Scotland had the Caledonian, Glasgow and South Western, North British and other lines. The opening of the Great Central Line was the last important addition to the country's railway mileage.

POST-WAR DEVELOPMENTS. During the Great War the Government took control of the railways, and this was retained until 1923. To effect economies in working expenses it was decided that the lines should be formed into four great groups, and these were duly constituted. The groups are the Southern, Great Western, London, Midland and Scottish and the London and North Eastern. The Southern includes the London and South Western and other lines in the south of England. The Great Western is composed of that line and of the Cambrian and others in Wales. The L.M.S. consists of the Midland, London and North Western, Lancashire and Yorkshire, and all the important Scottish lines except the North British. The L.N.E. includes the Great Eastern, North Eastern, Great Central, Great Northern and North British.

The British railway companies are still controlled to some extent by the state and special legislation has been passed for them. The control is exercised by the Ministry of Transport. There is a Railway Rates Tribunal to fix the rates which they may charge for the carriage of goods, and there is a national wage board for the fixing of wages.

The mileage of the British railways in 1930 was 19,336 and the receipts were over £154,000,000. The United States has 262,215 miles. Some countries, e.g., France, Germany and Canada, have state-owned railways, and proposals for nationalising the British lines have been made. The Irish railways, excluding

those serving Ulster, have been amalgamated into one organisation, the Gt. Southern Ry.

Road competition has seriously affected the receipts of the railways, which have fallen very considerably since 1923, leading to reduced dividends and serious declines in the value of railway stocks. A scheme for electrification of the main lines, at a cost of £261,000,000, was put forward in the report of a committee which met in 1929-30.

The chief unions of railway employees are the National Union of Railwaymen, the Associated Society of Locomotive Engineers and Firemen and the Railway Clerks Association. There is in London a railway clearing house for adjusting business between the various companies.

The standard gauge for British railways is 4 ft. 8½ ins., and this has been accepted over a good part of Europe and in the United States. Australia, however, has different gauges and so have India, Ireland, Russia and other countries. The world's fastest train run is from Swindon to London, on the G.W. line. On June 6, 1932, this was done in 56 min., 47 sec., being an average speed of 81.6 miles an hour over the 77½ miles.

Engineering has made it possible for railways to reach greater heights and there are funicular and rack railways up a number of mountains, those being specially constructed and carrying passengers only. The greatest heights reached are across the Andes in Peru, where there are at least four lines that reach 15,000 ft.

Rain Name given to the fall of condensed atmospheric vapour in drops of water owing to the lowering of the temperature below dewpoint. Condensation first results in the formation of minute drops which float in masses forming clouds and as the process continues these drops coalesce, forming larger drops, whose weight causes them to fall as rain.

Rainbow Name given to the coloured arch seen in the sky away from the sun when rain is falling during sunshine. It is due to the reflection and refraction of light in the raindrops, causing the breaking-up of the white light into the seven colours of the spectrum in varying degrees of intensity, according to the size of the drops. Sometimes a second or even third bow in fainter colours may be seen in brilliant sunshine.

Rainfall Term applied to the general precipitation of rain over an area, including also the fall of snow and hail. The study of rainfall forms an important branch of meteorology, observations being carried out as to the amount of precipitation and its seasonal and local variations as well as to the causes determining the rainfall in particular districts. A continual circulation of vapour occurs between the terrestrial waters and the atmosphere, and moisture-laden winds from the sea blow over the land, the vapour being carried up into the colder upper air, where it condenses in clouds and finally in rain.

Rainford Urban district of Lancashire. It is 4 m. from St. Helens and is a junction on the L.M.S. Ry. Around are coal mines and stone quarries and the town has some manufactures. Pop. (1931) 3494.

Rain Gauge Meteorological instrument for measuring the rainfall. A rain gauge usually consists of a cylindrical copper vessel, containing a funnel for catching the rain and a bottle or other form

of receiver. The contents are emptied at regular intervals into a measuring glass, graduated in inches of rain.

Rain-making Causes rain to fall. It forms the object of various rites and ceremonies among primitive peoples, when the rainmaker is often an important individual. Attempts have been made to cause precipitation of vapour as rain by the use of gunfire, or by scattering chemicals and other substances from aeroplanes, but with no appreciable success.

Raisin Dried ripe fruit of certain white varieties of grape, used for dessert, cooking or wine-making. Sun-dried on the vine, spread on the ground or dried by artificial heat, raisins come from S.E. Spain, and are collectively called Malaga raisins, including muscatels and pudding-raisins; from Smyrna, including elemes and seedless sultanas; from Provence, Calabria, Australia and California. See CURRANT.

Rajah Hindu name for a prince or king. It is still used for a ruler in India, e.g. the Rajah of Tripura, but a number of the more important ones are called maharajah, or great prince. It is also used in Malaya and Borneo. The word *raj* means rule.

Rajput Hindu word meaning "the son of a king." It is applied to the ruling race of the State of Rajputana, to which it gives its name.

Rajputana District of India. It is bounded on the west by Sind, on the north by the Punjab, on the east by the United Provinces. The Aravalli Mountains running across the country separate the fertile land to the S.E. from the sandy and ill-watered region to the N.W. Politically, the district is a collection of 21 Indian states, under the charge of an agent to the Governor-General. The population is 10,340,000, of whom only 620,000 actually belong to the Rajput race. The chief language is Rajasthani.

Raleigh Sir Walter. Elizabethan explorer and writer. He was born near Sidmouth about 1552. After fighting in Ireland he became first favourite of Queen Elizabeth. In 1584 a fleet sent out by him to America founded the new colony of Virginia, which he failed to establish.

Raleigh was supplanted in the Queen's favour by the Earl of Essex in 1587 and went to Ireland, but was restored to favour until Elizabeth discovered his intrigue with Elizabeth Throgmorton, when he was imprisoned. In 1596 his advice gained England the triumph of Cadiz. Raleigh was condemned to death for treason, but was instead imprisoned in the Tower, where he wrote his *History of the World* and *A Discourse of War*. In 1616 he made a disastrous expedition to the Orinoco in search of gold, and on his return was condemned to death, apparently for failure, and beheaded on Oct. 29, 1618.

Ramadan Ninth month of the Mohammedan year, invested with special sanctity by the Koran and observed by faithful Moslems as a period of fasting. During this period strict abstinence is enjoined during the hours of daylight from food, drink and

amadi Town of Iraq. It stands on the Euphrates, 60 m. from Bagdad. Here, on Sept. 28-29, 1917, a battle was fought between the British and the Turks. The British, advancing from Bagdad, attacked the Turkish position on the 28th and on the

29th, after some hard fighting, captured the remains of the army and entered the town. In the engagement some Indian regiments did splendid service.

Rambouillet Town of France. It is 30 m. from Paris and is famous for its château, the country residence of the President of the Republic, formerly used as a residence by Napoleon. It stands in a large park and has beautiful gardens.

Rameses Name of three Egyptian kings. **Rameses I.** made a treaty with the Hittites, and expanded Egypt as far as the Wady Halfa.

Rameses II., called "the Great," defeated the Hittites, and married their princess. He conquered Ethiopia, and established a fleet on the Mediterranean. He lived about 1322 B.C.

Rameses III., made war on the Philistines, and the tribes of the coast of Greece and Asia Minor, and again conquered Ethiopia.

Ramie Name of Malay origin for the bast fibre of a stinging nettle, (*Boehmeria tenacissima*), called in Assam reba. This is a variety of *B. nivea*, the source of China-grass. One or other now grows in the S. parts of Africa, France, England and U.S.A. The fibre serves for incandescent gas-mantles, nets, etc.

Ramilles Village of Belgium. It is 13 m. from Namur and is famous for the battle fought here, May 23, 1706. An English and Dutch army under Marlborough met a French one under Villeroi. The first English attack was indecisive, but the battle was won through the genius of Marlborough, and the French compelled to give up the whole of the Spanish Netherlands.

Rampant Heraldic term denoting an attitude of beasts of prey in armorial charges, standing on the left hind-leg, the others being upraised, the right fore-leg above the left, the head sideways, and the tail upwards. Should both hind-legs be aground, it is salient. Full-faced is rampant guardant. Looking backwards is rampant regardant. See LION.

Rampion Name of several perennial herbs of the bellflower order, natives of Europe and W. Asia. (1) The genus *phyteuma*, with many garden forms, especially rock-plants, includes the British *P. spicatum*, formerly cultivated for its edible tuberous rootstock. (2) *campanula rapunculus*, also British, has a spindle-shaped, fleshy root, and is grown for the table, especially in France.

Ramsay Allan. Scottish poet. He was born, Oct. 15, 1686, and first came into prominence by writing some additional cantos to an old Scotch poem, *Christ's Kirk on the Green*. He was at that time a wigmaker in the Edinburgh High St., and later became a bookseller. His most famous work, *The Gentle Shepherd*, was published in 1725. It is a dramatic pastoral poem, on a typically Scotch theme, and was performed at the Edinburgh Theatre. He died Jan. 7, 1758.

Ramsay Sir William. British chemist. He was born, Oct. 2, 1852, was Professor at University College, London, from 1887 to 1912, and was for many years the leading exponent of physical chemistry in Britain. He was associated (1894) with Lord Rayleigh in the discovery of argon, and in the next year he obtained helium for the first time. He died July 23, 1916.

Ramsay Sir William Mitchell. Scottish archaeologist. He was born at Glasgow, Mar. 15, 1851, and was Professor of Humanity at Aberdeen from 1886-1911. For more than 45 years the history and geography of Asia Minor have been his special study. His works include *The Church in the Roman Empire* (1893); *St. Paul, the Traveller and the Roman Citizen* (1895); *The Letters to the Seven Churches of Asia* (1905). He was knighted in 1908.

Ramsbottom Urban district of Lancashire. It is situated on the Irwell, 4 m. from Bury, by the L.M.S. Rly. The chief industry is the making of cotton goods with the attendant occupations of bleaching and dyeing. Pop. (1931) 14,926.

Ramsbury Village of Wiltshire. It is 5 m. from Hungerford, on the G.W. Rly. In Anglo-Saxon times it was the seat of a bishopric.

Ramsey Island of Pembrokeshire. Situated off St. David's Head, it is about 2 m. long and covers 600 acres. There is a harbour on the east coast, and on the island are wild duck, snipe and woodcock.

Ramsey Urban district and market town of Huntingdonshire. It is 10 m. from Huntingdon, on the L.N.E. Rly. The chief building is the magnificent parish church. There was once a Benedictine abbey of which only a gatehouse remains. The modern abbey is the seat of Lord de Ramsey. Near was the lake called Ramsey Mere, but this has now been drained. Pop. (1931) 5180.

Ramsey Market town and seaport of the Isle of Man. It is in Ramsey Bay, on the north-west side of the island, 14 m. from Douglas. Near is Snaefell, which can be ascended by railway. Steamers go regularly to and from Liverpool and other parts. Pop. 5000.

Ramsgate Borough, pleasure resort and seaport of Kent. It is on the Isle of Thanet, 78 m. from London and 16 from Canterbury, on the S. Rly. There is an inner and an outer harbour, and fishing is an important industry. There are fine promenades, large parks and excellent sand. During the summer steamers go regularly to and from London, and also to Calais and Boulogne. Pop. (1931) 33,597.

Rand Short name for the district in the Transvaal known as the Witwatersrand. It is the richest gold-bearing region in the world. See WITWATERSRAND.

Ranelagh Place of amusement in London. It was in Chelsea, where are now the grounds of Chelsea Hospital. There, Richard Jones, Earl of Ranelagh, built a house and laid out gardens which, in the 18th century, were a popular pleasure resort for the fashionable folk of London. In the grounds was an immense rotunda, where entertainments of all kinds were held.

The modern Ranelagh Club is at Barn Elms Park, London, S.W. 13. It was opened in 1894 and is a centre for polo. It has also facilities for golf, croquet and other games.

Range Finder Instrument devised for calculating the distance of an object from the observer, and used in ascertaining the distance of a target; also in surveying. The usual form of range finder or telemeter is based upon the measurement of the angles of a triangle whose apex is the distant object and the base the instru-

ment, one of the basal angles being made a right angle. The instrument is a modification of the principle of the sextant.

Rangoon Capital and principal seaport of Burma. It is situated on the left bank of the Hlaing or Rangoon River, about 20 m. from its entrance into the Gulf of Martaban. A town has existed on this site since the 6th century. The principal building is the Shweg Dagon Pagoda, the central shrine of Burmese religion. It is 368 ft. high and is covered with gold leaf. During the last 50 years Rangoon has developed from comparative insignificance into the third port of the British Empire. It has a university and many fine public buildings and amenities. Its present importance is largely due to the quantities of rice which are exported from its harbour. Pop. 341,962.

Ranjitsinhji Kumar Shri. Indian prince and cricketer. He was born Sept. 10, 1872, and finished his education at Trinity College, Cambridge. There he played cricket for the university, and in 1895 he settled in Sussex and began to play regularly for that county. His wonderful batmanship made an extraordinary impression and he became perhaps the most popular batsman, as he was certainly the most graceful in the land. He played for England against Australia and in other representative matches. In 1906 Ranji, as he was popularly called, became a ruling Indian prince when he succeeded as Maharajah of Nawanagar, and as such he served in France in 1914-15 and took part in Indian politics. In 1927 he published *The Jubilee Book of Cricket*.

Ranke Leopold von. German historian. He was born Dec. 21, 1795, studied at Halle and Berlin, and in 1826 became Professor of History in Berlin. Perhaps the greatest of modern historians, Ranke wrote no less than 47 volumes, including the monumental *History of the Popes of the 16th and 17th centuries*. He also wrote about certain periods in the histories of England, France, Germany, Austria and Venice. When he died, May 23, 1886, he was engaged on a *History of the World*.

Rannoch Loch or lake of Perthshire. In the north-west of the county, it is 9 m. long. Its waters are carried by the Tummel into the Tay. The moorland area around the lake is known as Rannoch. There is also Loch Lydoock, 5½ m. by half a mile.

Ranters (1) Antinomian and pantheistic sect in Commonwealth England. Rejecting ecclesiastical and scriptural authority they included fanatical elements whose influence was gradually counteracted by the Quaker message. (2) Name applied, about 1823, to street-singers in Belper when returning home from early Primitive Methodist camp-meetings; afterwards extensively used as a nickname for the religious community.

Rapallo Watering place of Italy. It is on the Gulf of Rapallo, 16 m. from Genoa, and is one of the most popular resorts on the Italian Riviera. The industries are fishing and lace making. Pop. 7180.

At Rapallo on Nov. 12, 1920, Italy and Yugoslavia signed a treaty fixing the boundaries between the two nations. By it Fiume was recognised as an independent state.

Rape Name applied to cultivated varieties of several cruciferous herbs of the cabbage genus, notably *Brassica napus* and *B. campestris*. Introduced into Tudor England,

they are grown extensively in Europe and India for green forage; the seeds, used for feeding poultry, yield an edible, burning and lubricating oil, known commercially as colza.

Rape In law, the crime of having carnal knowledge of a woman by force, against her will. At one time it was a capital offence, but since 1861 has been punishable in England by penal servitude for life. The offence is not mitigated by unlawful extortion of consent by threats, etc.

Raphael One of the archangels. He is represented in the Book of Tobit as appearing in human form to act as the guide and guardian of Tobias.

Raphael Sanzio Italian painter. He was born at Urbino, April 8, 1483, and received his early training from his father, though the latter died when his boy was but eleven years old. Raphael's work falls into three periods: (1) Perugian (1500-04) during which he first studied under and then worked in co-operation with Perugino; (2) Florentine (1504-08), when he came under the influence of Leonardo da Vinci and Michelangelo; (3) Roman (1508-20) during which he decorated the state apartments in the Vatican at the request of Pope Julius II.

One of the greatest and most versatile of painters, he not only excelled in every branch of the art, but was loved by all who knew him. His last work, "The Transfiguration," was almost completed when he died, April 6, 1520.

Raphia Palm Genus of palm-trees indigenous to tropical Africa and America. Their long-stalked, feathery leaves, sometimes exceeding 50 ft., split lengthwise into strips, serve for native mats, clothing, etc. Important species are the Amazon jupati palm and the W. African bamboo, or wine-palm, yielding a fermentable sap and a bass; one grown in Madagascar and elsewhere supplies raffia. See RAFFIA WORK.

Rapier Slender, highly-tempered, sharp-pointed, edgeless weapon about 3 ft. long, used solely for thrusting. Superseding the two-edged pointed sword used in 16th-17th century duelling, which on occasion served also for cutting, it was long indispensable for gentlemen's wear. It survives ceremonially in court dress, and with the foil is the main modern fencing weapon.

Raspberry Shrub of the rose order (*Rubus idaeus*). Its perennial stool produces shoots which bear, in the second year, many scarlet or yellow fruits. Cultivated varieties yield finer and larger fruit, used for dessert, jam, sweetmeat-flavouring, wine, etc. The sweetened juice mixed with vinegar is called raspberry vinegar. *R. odoratus*, an ornamental shrub, sometimes white-flowered, in British gardens, comes from Canada and the northern U.S.A. See LOGAN-BERRY.

Rasputin Gregory Efimovitch. Russian monk. He was born in 1871 in the province of Tobolsk, Siberia, had no education, and lived until 1904 in his native village. Then he left his family, and practised religious exercises, adopting the attitude that it was necessary to sin in order to obtain forgiveness. He had tremendous strength and personality and, despite his orgies, surrounded himself with an air of mysticism. Soon he appeared at court, and exercised a malign influence on Church and State, until he was invited to supper at the Yusupoff

Palace by the Grand Duke Dmitri Pavlovitch and others, and shot dead, Dec. 15, 1916.

Rat Name applied to various rodents, specifically to the larger species of the mouse genus. The long-tailed black rat (*Rattus rattus*), 7 in. long with 8-9 in. tail, of Asiatic origin, which reached 13th century Europe, and became established in Britain, is the progenitor of white and pied domesticated forms. Following its westward migration came the brown or Norway rat, 8-9 in. long with shorter tail, which swam the Volga, 1797, reached Britain in East-Indiamen, c. 1730, and ousted its smaller congener from most parts of England and many continental areas. Its parasitic flea, when infected, conveys bubonic plague. See MUSQUASH.

Ratafia Flavouring essence. It is made with essential oil of almonds.

Ratcliff Highway Old name for a street in Stepney. It is now called St. George's Street. In the 18th century it had a very evil reputation due, in part, to a series of murders which took place there in 1811.

Ratel Genus of burrowing carnivores of the weasel family (*Mellivora*), inhabiting India and Africa; also called honey-badger. Short-limbed and short-tailed, the underparts are black, the upper iron-grey.

Rates Word used for the money raised by local authorities for their expenses. Rates are thus the local counterpart of taxes, or money raised for national purposes. At one time there were several rates, a sanitary rate, an education rate, a police rate and others, but these have now been amalgamated and most areas raise a consolidated rate. The only exception is the water rate which is quite distinct from the others.

The amount of the rate is fixed by the council at so much in the £ for the year on the rateable value of property in its area. This is then collected from the various owners and occupiers, each paying according to the rateable value of his premises. In the case of small houses the rates are usually paid by the landlord. There is no limit to the amount of the rate which a council can levy: in some areas the rates exceed 25/- in the £. In order to allow for an increase or decrease in the value of property, it is valued periodically, usually every five years.

In 1896 the rates on agricultural land were reduced by one-half, and in 1923 there was important legislation in the same direction. By a scheme of derating, land used wholly for agricultural purposes was entirely relieved of rates. Land and buildings used for industrial and transport purposes were relieved of three-quarters of their rates. In order to make up the loss to the local authorities, grants were made by the government. In 1930 the amount of money raised by the rates in England and Scotland was over £185,000,000.

Rath Irish name for a prehistoric hill fort. It was protected by an embankment and sometimes by stakes. There are remains of about 30,000 in the country and the word forms part of many place names.

Rathfarnham District of Dublin, Irish Free State. It is on the River Dodder, 4 m. to the south of the city proper. Here is a castle, at one time a seat of the Loftus family.

Rathlin Island of Ireland. It is off the coast of Antrim, 6 m. north

of Ballycastle. It is 6 m. long and on it are the ruins of a castle.

Rating In the British Navy the class to which any member of the crew belongs. It is also used for the tonnage class of a racing yacht.

Rationalisation Industrial term that came into use after the Great War. It describes the process of making productive industries more efficient by eliminating waste, and still more by organising them into larger units for the purpose of meeting competition. A good deal was done in this direction, notably in the iron and steel and associated industries, among shipbuilders.

Rationing Apportioning of a share of supplies, usually of food, to each member of an army, navy or population. In the army and navy this is done through quartermasters and petty officers, and each man has a standard daily ration of food, a part of which may be commuted for a cash allowance to be spent on other food.

During the War, the entire population of Great Britain was rationed, from June, 1917, particularly with regard to fats, sugar and meat. Each person had a registration card, with detachable coupons, which were checked by the retailer with whom he was registered, who received enough food to supply all his registered customers.

Rattlesnake Genus of American venomous snakes of the pit viper sub-family (*Crotalidae*). Measuring 4-8 ft., there are several N. American species; one extends S. of Panama. They produce living young; and peccaries habitually feed on them. The rattle comprises several loose-jointed horny pieces attached to the tail's end bone, one being added every time the skin is sloughed; 23 have been counted. The tail's agitation produces a warning noise perceptible at 10-20 yds. distance. Sluggish and inoffensive, they strike only under provocation.

Raunds Urban district of Northamptonshire. It is 8 m. from Wellingborough on the L.M.S. Rly., and is a centre for the manufacture of boots and shoes. Pop. (1931) 3683.

Ravel Maurice. French composer. Born March 7, 1875, at Ciboure (Pyrenees), he was educated in Paris and studied music at the Conservatoire there under Bériot, Gédalge and Gabriel Fauré. In 1901 he won the 2nd Prix de Rome with his cantata, *Myrrha*. At first he attracted little notice, but his *Schéherazade*, in 1904, was hailed as a "miracle of musical impressionism." His masterpiece is perhaps the ballet, *Daphnis et Chloé* (1921). He has written much for the voice, the piano and the orchestra, including opera.

Raven Largest bird of the crow family (*Corvus corax*). Normally 25 ins. long, strong-billed, strong-flying, harsh-voiced, with ebony-black bill, legs and plumage, the breast and upper parts acquire a glossy steel-blue sheen. It breeds in N.W. Scotland and other isolated parts of Britain, 3-5 brown-spotted bluish-green eggs being laid in bulky cliff-built or tree-built nests. Easily tamed, it makes an intelligent but thievish pet, and can produce parrot-like imitations.

Ravenna City of Italy. It is famous for its splendid examples of ecclesiastical architecture, belonging to the period from 5th to 8th centuries. It is one of the most ancient of Italian towns, and was used by Augustus as the headquarters of his Adriatic

fleet. Four hundred years later the Emperor Honorius took refuge there with his court from the advancing Alaric. Afterwards the city remained the capital of Italy for 350 years. Dante is buried there.

Ravensbury District of Surrey. It is in the urban district of Mitcham and adjoins Watermeads, the property of the National Trust. The manor house was long the residence of the Bidder family, and on the estate are the nests of rare birds, as well as a heronry. In the woods are the ruins of the old manor house, once the home of the Throckmorton family. There is a Saxon cemetery in the district.

Ravenscar Watering place of Yorkshire (W.R.). It is 10 m. to the north of Scarborough and is served by the L.N.E. Rly.

Ravenscourt Park District of London. It is in the borough of Hammersmith. The park from which it takes its name is now public property, and in it is an 18th century house and an old English garden. In 1932 the freemasons erected a hospital in the district.

Ravenswood Town of Queensland. It is 78 m. from Townsville. Gold is mined in the neighbourhood. Pop. 2000.

Ravensworth Village of Durham. It is 3 m. from Newcastle and contains a castle, the seat of Lord Ravensworth. This was erected in the 19th century on the site of an earlier one. The title of Baron Ravensworth dates from 1821 and is held by the family of Liddell. From 1874 to 1904 there was an Earl of Ravensworth.

Rawal Pindi Indian town. It is situated in the Punjab, about 110 m. S.E. of Peshawar, and was the scene of the surrender of the Sikhs in 1849. Its present importance is due to its premier place among Indian military stations, owing to its size and its key position in the North-West Frontier system of defence. Rawal Pindi gives its name to a district and division of the Punjab.

Rawdon Urban district of Yorkshire (W.R.). It is 5 m. from Bradford on the L.M.S. Rly. The chief occupation is the woollen industry. Pop. (1931) 4574.

Rawlinson Lord. British soldier. Born Feb. 20, 1864, Henry Seymour Rawlinson served with Sir F. Roberts in India and in Burma (1886-87), on the Nile (1898), and in the South African War. During the Great War General Rawlinson commanded troops at Antwerp, Ypres, and the Battle of the Somme (1916) with conspicuous success. His victory with the French at Amiens in 1918 heralded the general advance of the Allies. He was rewarded for his services in the Great War by being made Baron Rawlinson of Trent. In 1919 he conducted the withdrawal of the Allied troops from Archangel in Northern Russia, and in 1920 went to India as commander-in-chief of the army there. He died on March 28, 1925. His biography has been written by Sir F. Maurice.

Rawlinson Sir Henry Creswicke. English soldier and orientalist. Born on April 11, 1810, he went to India in 1817 as a cadet in the East India Company, and later helped to reorganise the Shah of Persia's troops. He became interested in the hitherto undeciphered cuneiform characters, and completely transcribed the inscription

at Behistun. In 1851 he continued the French excavations on Assyria. In 1859 he was minister plenipotentiary to Persia, and returned to England in 1860. He served on the Council of India from 1868, and advocated a forward policy in Afghanistan. He died on March 5th, 1895.

Rawmarsh Urban district of Yorkshire (W.R.). It is on the Don, 2 m. from Rotherham and is reached by the L.M.S. Rly. The main industry is the manufacture of iron and steel goods. Pop. (1931) 18,570.

Rawtenstall Borough of Lancashire. It is 19 m. from Manchester, on the L.M.S. Rly., and manufactures cotton goods. Coal mines are in the district. Pop. (1931) 28,575.

Ray Line at right angles to the wave point of the luminous source, in which light is propagated. In this strict sense it is a mathematical conception. Popularly a narrow pencil of light is termed a ray. Besides the visible rays of the solar spectrum-light there are others at each end which are not perceived by the eye, *e.g.*, the actinic or ultra-violet rays, and, at the opposite extreme, the infra-red or heating rays. See HEAT, LIGHT, SPECTRUM, X-RAYS.

Ray Flattened cartilaginous fish with broad and fleshy pectoral fins. Of true rays (*Raja*) British forms include the short-snouted thornback, the spotted, starry and sandy rays, the last being the most frequently eaten, and several long-snouted species, usually called skates. Allied families include the electric ray or torpedo, sting-ray, eagle-ray and ox-ray or devil-fish.

Rayleigh Village of Essex. It is 8 m. from London, being served by the L.N.E. Rly. The family of Strutt takes the title of baron from here. Pop. (1931) 6256.

Rayleigh Baron. English physicist. Born Nov. 12, 1842, John William Strutt Rayleigh succeeded to his father's title as 3rd baron in 1873. After a brilliant career in Cambridge he became Cavendish Professor of Experimental Physics there, and Professor of Natural Philosophy at the Royal Institution. In conjunction with Sir William Ramsay he discovered argon (*q.v.*). He died June 30, 1919, and was succeeded as 4th baron by his son, Robert John, already eminent in the world of science.

Robert John Strutt Rayleigh was born Aug. 28, 1873, and educated at Eton and Trinity College, Cambridge (Fellow, 1900). He is Foreign Secretary of the Royal Society, and Emeritus Professor of Physics at the Imperial College of Science, South Kensington. He has done much work in connection with radium, and has written a number of scientific papers.

Razorbill Sea-bird of the auk family, (*Alca torquata*) inhabiting arctic and northern regions. Resident in Britain, 17 in. long, it has a glossy blackish plumage which is white underneath. The massive deeply-furrowed bill, flattened laterally, has a hooked tip. The brown-blotched whitish egg, laid on a rocky cliff on both Atlantic coasts, including that of Great Britain, is a delicacy.

Razor Shell (or Razor Fish). Family of sand-burrowing bivalve molluscs having long narrow parallel-sided shells with truncated ends. The common British *Solen siliqua* is used for food and for fishing-bait.

Reade Charles. English novelist and dramatist. Born at Ipsden House on June 8, 1814, and educated at Magdalen College, Oxford, he was called to the bar in 1843. He first began writing in 1850, beginning with plays including *Masks* and *Faces* (1852). It was as a novelist that he achieved fame. Among his more important works are *Peg Woffington* (1852), *It is Never too Late to Mend* (1856), and his masterpiece, *The Cloister and the Hearth* (1861). He died on April 11, 1884.

Reading Borough and market town of Berkshire, also the county town. It is 36 m. from London, standing where the Kennet falls into the Thames. The town proper is on the south side of the river, and is an important railway centre, being served by the G.W., S., and L.N.E. Rlys. It has also canal connections.

Some ruins of the Benedictine monastery in which Henry I. was buried may be seen. The chapel of the Grey Friars is another object of interest. The museum contains Roman remains from Silchester. Since 1926 there has been a university. Reading is famous for its biscuits and its seeds; it is also an agricultural centre and has engineering works. Pop. (1931) 97,153.

Reading Marquess of. English statesman. Rufus Daniel Isaacs was born in London, Oct. 10, 1860, and educated at University College School and abroad, studied law, and became a Bencher of the Middle Temple. Entering Parliament, he represented Reading as a Liberal from 1904 to 1913, was Solicitor-General in 1910, Attorney-General, 1910-13, and Lord Chief Justice of England, 1913-21. He was Special Envoy to the United States in 1917, High Commissioner and Special Ambassador to the United States in 1918, and from 1921 to 1926 was Viceroy of India. He was knighted in 1910, created a baron in 1914, viscount in 1916, earl in 1917, and marquess in 1926. His eldest son is called Viscount Erleigh.

Realism Doctrine in philosophy that things have a real existence apart from their presentation to our consciousness. Something of the kind was taught by Socrates. It is thus the opposite of idealism. In literature and art, realism is also opposed to idealism or romanticism. It claims to present life as it really is, not as it ought to be or is desired to be. It does not, therefore, ignore the unpleasant or sordid aspects of life. In this sense Thomas Hardy and some of the great French and Russian writers are realists.

Real Presence Eucharistic doctrine. It is the belief, held by the Roman and Greek Churches and by High Church Anglicans, that the bread and wine of the Eucharist contain, after their consecration, the body and blood of Jesus Christ. This belief rests upon a literal interpretation of the words of institution, "This is my body" and "This is my blood," and of the sixth chapter of S. John's Gospel. Some of those who hold this doctrine, notably Roman Catholics, believe that the sacred elements may be worshipped, but the Greek Orthodox Church does not so believe. See RESERVATION.

Real Property Term used in English law for land and houses. It is distinguished from personal property, which covers all other forms of property, including leaseholds. Before 1925 real property and personal property, in the case of a person dying intestate, descended in different ways,

but this is no longer so. The two kinds of property are, however, valued separately on the occasion of death, and certain legal differences between them persist.

Rebec Medieval stringed instrument played with a bow, of Asiatic origin, and known in 9th century Europe. A broad-based 3-stringed Byzantine type, illustrated on ivory caskets and illuminated MSS., had a body like a pear halved lengthwise, pierced with sound holes. A narrow 2-stringed boat-shaped type reached Moorish Spain. Violins ultimately superseded both.

Rebecca Riots Disturbances that broke out in South Wales in 1839 and the following years. They were caused by the charges made at the toll gates for the use of the roads, although there were contributory causes. The rioters, dressed as women and calling their leader "Rebecca," went about the country destroying the toll gates; some of them rode horses. Troops were sent against them and the rising was put down. The name was taken from a passage in Genesis xiv. where Rebecca says, "Let thy seed possess the gate of those which hate them."

Rebekah Sister of Laban, wife of Isaac and mother of Esau and Jacob. By her ruse her younger son deprived Esau of the paternal blessing (Gen. xxvii.). She was buried in Abraham's tomb at Hebron. The Jewish and Christian personal name commonly follows the N.T. spelling < Rebecca.>

Rebus Riddle that is a representation of a sentence or object by means of pictures or words, or both in combination. They originated in France. An example is "be independent, but not too independent," which as a rebus may be represented by the letter B pendant in the letter D, a butt, a knot and the figure 2 pendant in D. In heraldry a rebus is an allusion to the name of the bearer in a coat of arms. Thus a hammer for Hammer-ton is an example.

Récamier Madame. French society leader and beauty. Born Dec. 4, 1777, she married, at sixteen, a rich banker of fifty-four, and gathered many distinguished people in her brilliant salon. Her husband was ruined in 1806, and Madame visited Madame de Staël at Coppet, where she met Prince August of Prussia. He wished to marry her if M. Récamier would consent to a divorce, but although this was granted, Madame refused to leave her husband in his adversity. One of her greatest friends in after years was Chateaubriand. She died on May 11, 1849.

Receipt Acknowledgement of a payment made. By English law a receipt for £2 or over must be stamped. This was long a penny stamp, but in 1920 it was raised to twopence. A person giving an unstamped receipt is liable to a fine of £10. A receipt can be stamped at the inland revenue offices on payment of £5 within 14 days, or £10 within a month.

Receiver Person appointed to look after the property of a company or person who is unable to meet its or his liabilities. To supervise the affairs of bankrupt estates there are official receivers in the various county courts and in London. Debenture holders usually appoint a receiver when the interest on the debentures is not forthcoming after a stated time.

Receiving Order Order made by a court of law in

the case of a bankrupt individual, or a company that cannot meet its liabilities. One or more of the debtors usually make the application, and if it is granted a receiver takes over the assets of the individual or company and distributes them as the law directs.

Rechabites Hebrew religious community. Originated in Jehu's reign by Rechab's son, Jehonadab, who followed his father's practice, they dwelt in tents, and as old wine, vine-planting and grain-growing (2 Kings x.). Three centuries afterwards, Jeremiah commended their devotion (Jer. xxxi.). The Independent Order of Rechabites, a total abstinence Friendly Society, founded 1836, numbers about 725,000, including overseas members.

Reciprocity Exchange of commercial privileges. It is usually experienced when two nations make tariff concessions to each other. Much was heard of the word in 1911 when there was a proposal for reciprocity between the United States and Canada. The proposal was, however, defeated.

Reclamation Recovering land from the sea. It has occurred in the building of sea walls and embankments and is usually done when the sea is receding. In England much land around the Wash has been reclaimed, and there are other instances, notably on the south coast of Kent, and in the estuary of the Ribble. Another kind of reclamation is to drain off inland water, as when Whittlesea Mere was so drained. It is now a tract of agricultural land, but it was once a lake.

Recognizance In England a legal obligation entered into before a magistrate. It is usually a promise, under penalty, to commit or not to commit a particular act. For instance a man summoned for dangerous driving may be asked to give recognizances that he will not drive again for six months.

Recollect Fathers (or Recollects). Franciscan friars of the Strict Observance. Founded in 15th century Spain, and approved by Pope Clement VII., 1532, they were among S. America's earliest Christian missionaries. Gaining renown by preaching, they served as archdeacons in pre-revolutionary France, and operated in India, Canada and Jerusalem, where they have the charge of Latin Christendom's holy places.

Reconstruction Term used in the United States for the work of restoring the country to prosperity after the devastation caused by the Civil War. It was used in a similar sense in Great Britain after the Great War. In 1917 a ministry of reconstruction was established to prepare for the return of soldiers to civil life and for other changes consequent on the return of conditions of peace. It continued until 1920, when it was abolished.

Reconstruction is also used in a legal sense. It describes the reorganisation of a company's finances, usually in consequence of trading losses. A scheme of reconstruction must be approved by the shareholders and by the courts of law. It usually involves a reduction of the nominal amount of the capital in the business.

Recorder In England a judge. Certain cities and towns have the right to hold courts of quarter sessions and to preside over them, a barrister, called a recorder, is appointed. He receives a salary and holds office for life or until promoted.



COWES REGATTA.---A thrilling struggle for the lead in the race for the King's Cup during the famous yachting week at Cowes. Nearest the camera is *Britannia*, the King's yacht, and beyond *Velsheda* and *Astra*.

(Sport & General

He ranks next after the mayor. A recorder cannot sit in Parliament for his own city or borough.

Recorder Instrument used in telegraphy for registering signals on submarine cables. The earlier form was a type of mirror galvanometer, but is now generally replaced by the "siphon recorder," which marks the message in ink upon a moving paper ribbon. The name recorder is given also to a soft-toned musical instrument of the flute type.

Record Office Public building in London. It stands between Chancery Lane and Fetter Lane, and in it the state papers and other historical documents are kept. It is controlled by the Master of the Rolls, and students can consult its records. The museum contains Domesday Book and other priceless historical documents.

Rectifier Electrical device for the conversion of an alternating current into a direct one. It is used for motors, arc lamps, and wireless receivers working from an alternating current main. In the mercury vapour type of rectifier an electric arc is maintained between two electrodes through mercury vapour in a vacuum, the current receiving high resistance in one direction. In an electrolytic rectifier the current readily passes only in one direction from a lead electrode to one of aluminium.

Rector Latin word meaning "ruler." In the Church of England a rector is one who holds a living in which all the tithes belong to him. A vicar has only the lesser tithes. It is also used for the heads of certain colleges at Oxford, e.g., Exeter, and for the headmaster of some of the chief of the Scottish schools, e.g., Edinburgh Academy. In the United States the incumbents of the episcopal churches are called rectors—as they are in Scotland. The title is also held by certain ecclesiastics who are engaged in teaching duties in the Roman Catholic Church.

Reculver Village of Kent, 3 m. E. of Herne Bay. The old church was pulled down in the 19th century, but its two towers have been taken over by Trinity House to serve as a seamark.

Redcar Urban district, market town and watering place of Yorkshire (N.E.). It is 8 m. from Middlesbrough, on the L.N.E. Rly. The attractions include good bathing and golf links, but more notable is the fine, firm expanse of sand which is used for motor racing. Horse races are held regularly in the town. Pop. (1931) 20,159.

Red Cross International agency for the alleviation of human suffering, especially for giving relief to the sick and wounded in time of war. Its origin may be dated from a meeting held at Geneva on Feb. 9, 1863, to discuss the suggestions contained in a booklet by Henri Dunant entitled *Un Souvenir de Solferino*, which contained a moving description of the sufferings endured by the wounded in that battle (1859). As a result of this meeting, an international conference at Geneva accepted the principle of giving protection in war to the personnel of military hospitals and authorised as the symbol of such protection the now familiar red cross on a white background.

Red Deer Large species of deer (*Cervus elaphus*), widely distributed in temperate Europe, W. Asia and N. Africa. The male, 4 ft. high at the withers is called a stag, becoming in the sixth year a

hart; the female is the hind, the young the fawn. It is greyish in winter, reddish-brown in summer, with lighter underparts. It occurs wild in parts of Britain; tame herds are maintained in parks. The male develops finely-branched antlers each breeding season, shedding them by Feb.-Mar. See DEER.

Red Deer Town of Alberta. It is on the river of the same name, 99 m. from Calgary and 93 from Edmonton. It is an important junction on both the trans-continental lines, C.P.R. and C.W.R., and is also served by the Alberta Central Rly. It is the centre of a farming district and possesses grain elevators. Pop. 2006.

Reddish District of Lancashire. It is 4 m. from Manchester and is reached by the L.M.S. and L.N.E. Rlys. The chief industries are cotton mills and the making of machinery and chemicals.

Redditch Market town and urban district of Worcestershire. It is on the Arrow River, 15 m. from Birmingham by the L.M.S. Rly. It is famous for its manufactures of needles and fish hooks. Motor cycles are also made. Pop. (1931) 19,280.

Redemptorists Order of missionary priests in the Roman Catholic Church. It was founded by Alfonso Liguori in 1732. The members aim at teaching the belief of the Church and reforming public morals by visiting, preaching and hearing confessions. The order must be distinguished from the Redemptionists, whose work is to ransom negro children from slavery.

Redesdale District of Northumberland. It is the valley of the little River Redo, and extends for 20 m. from Reedsmouth on the Tyne to the border of Scotland. Owing to its position it figured much in the wars between England and Scotland, and the men of Redesdale won a great reputation as fighters. Otterburn is in the valley.

The title of Baron Redesdale is borne by the family of Freeman-Mitford. The first baron, John Mitford, a landowner in Northumberland, was Solicitor-General, Attorney-General and Lord Chancellor of Ireland between 1793 and 1806. His son, John Thomas Freeman-Mitford (1805-86) was created Earl of Redesdale in 1877, but the title became extinct on his death. In 1902 a diplomatist, Algernon Bertram Freeman-Mitford, was created Baron Redesdale. He wrote a volume of *Memoirs*, and died Aug. 17, 1916, when his son, David, became the 2nd baron.

Redhill Market town of Surrey. It is 21 m. from London, and is a junction on the S. Rly. It possesses a picturesque common. Redhill is part of the borough of Reigate.

Redistribution In political language the rearrangement of the constituencies that return members to the House of Commons. It is usually worked in connection with a measure extending the franchise, as was the case in the United Kingdoms in 1832, 1867, 1884 and 1918. There was, however, no redistribution after the extension of the franchise to all women in 1928. It serves to correct inequalities that have grown up in the various areas, some places having increased in population and others decreased. In some countries, Canada for instance, there is a redistribution of seats in the Dominion House of Commons after each census, according to a fixed plan.

Red Letter Days The greater festivals of the Church, which in old manuscripts were written in red to distinguish them from the lesser festivals, written in black. The term now signifies an outstanding or fortunate day.

Redmond John Edward. Irish politician. He was born at Hoeyfield, Co. Wexford, Sept. 1, 1856, educated at Trinity College, Dublin, and called to the bar in 1886. He represented New Ross, 1881-85, N. Wexford, 1885-91, and Waterford from 1891 until his death. He was one of the leaders of the Home Rule party, becoming chairman of the National party in 1900, and was a strong upholder of Parnell. Redmond's aim was not separation, but the attainment by friendly means of a "free Ireland within the Empire," and he expressed his abhorrence of the rebellion of April, 1916. He died March 6, 1918.

Redpoll Song-bird of the finch family, distinguished by the male's crimson crown and rosy breast. The name applies loosely to the cock linnet in summer plumage and to the mealy redpoll, *Acanthis linaria*, with white-marked wings, a winter visitor to Britain. The lesser redpoll, *A. rufescens*, darker and with unmarked wings, is resident.

Red River River of North America. Rising in N. Dakota, it flows between that state and Minnesota into Manitoba and discharges into Lake Winnipeg. A settlement formed by the Hudson Bay Company where Winnipeg now stands combined with one composed of French settlers nearby. The latter rebelled in 1869 when the territorial rights were purchased by the Canadian Government, necessitating the intervention of troops.

Another Red River is the southernmost large tributary of the Mississippi, joining in Louisiana.

Redruth Market town and urban district of Cornwall. It is 9 m. from Truro, and is served by the G.W. Ry. Redruth is an important centre of the tin and copper mining industries. It has also a trade in cattle. Pop. (1931) 9904.

Near the town are Carn Brea, a hill with Druidical remains and ruins of a castle, and Gwennap Pit, where John Wesley preached, is still a place for meetings of Methodists.

Red Sea Inland sea separating N.E. Africa from Arabia. It is 1460 m. in length, from Suez in the north to the Strait of Bab-el-Mandeb in the south, which connects it with the Indian Ocean. Its greatest breadth is 250 m. Navigation in the Red Sea is difficult owing to the irregularity of the tides. The completion of the Suez Canal in 1869 restored to the sea the position which it had held in ancient times as a great commercial highway.

Redshank British shore-bird (*Totanus calidris*) akin to the sandpipers, and ranging over Europe, Asia and N. Africa. Measuring 11 in., with greyish-brown plumage, whitish beneath, bright red legs and black-tipped yellow bill, it lays four blotched yellowish-grey eggs in grass-lined ground-nests. The slightly larger spotted redshank, with more mottled plumage, is a bird of passage in E. England.

Redstart Genus of song-birds (*Ruticilla*) of the thrush sub-family, natives of Europe, Asia and Africa. The com-

mon European *R. phoenicurus*, with white forehead and black throat, habitually darts the tail; the male, 5½ in. long, has a bright bay breast. It reaches Britain in March for breeding. The black redstart visits S. England autumnally.

Reduction Term used in metallurgy for the process by which a metal is separated from the ore. In the first stage the ore is reduced to a suitable degree of fineness by mechanical means and after washing and sorting is concentrated in a fine powder. The concentrate is then smelted by the aid of various reducing agents, in the case of oxides such as charcoal, cyanide of potassium and other substances which remove oxygen.

Redwing Small species of thrush (*Turdus iliacus*). The male, 8½ in. long, with reddish-orange under wing-coverts and axillaries, is distinguishable from the song-thrush by a white streak over the eye. Breeding in N. Europe, it is a winter visitor to Britain.

Redwood Name applied to several unrelated trees. The California redwood, *Sequoia sempervirens*, a cone-bearing evergreen growing 130 to 340 ft. high, with a trunk 8 to 25 ft. across, clear of branches ½ to ½ its height, yields light durable timber extensively used in Europe. Baltic redwood is the Scots pine. There are also Andaman, Cape and Indian redwoods.

Reed Name of various tall perennial water-loving grasses. The widely-distributed common broad-leaved reed, *Phragmites communis*, 6 to 10 ft. high, abounds in Britain. The Provence reed or Spanish cane, *Arundo donax*, sometimes 18 ft. high, is used for bagpipes and other wind instruments. The sea-reed or marram grass, *Ammophila arenaria*, is extensively planted for binding sand-dunes.

Reed Speaking part (made of coarse cane-like grass) in the mouthpiece of wood-wind instruments, saxophones and in harmoniums. Organ reeds are made of metal.

A "free" reed, when vibrating, passes through the slotted plate to which it is fixed, enabling the wind so to push it that the opening closes. The harmonium has a free reed.

A "beating" reed strikes the edges of the slot. Beating reeds can be single or double.

Reedbuck Boer name, *reëbok*, for several allied African antelopes, especially *Cervicapra arundinea*. Standing 3 ft. high at the shoulders, short-tailed, pale-fawn, orange-tinted on the head, and dingy-white underneath, the male alone bears upright horns 12 to 13 in. long, and curving slightly forwards. Formerly common, it is now rare S. of the Vaal, and extinct in Bechuanaland.

Reel Scottish dance. It is danced by couples to the music of the bagpipe or the fiddle. It may be a foursome, a sixsome or eightsome, according to the number of couples in the dance.

Reeves John Sims. English vocalist. He was born at Woolwich on Sept. 28, 1818. His first musical performances were given in boyhood on the organ, and he made his debut in opera in 1839 as a baritone soloist. It was, however, as a tenor that he achieved fame owing to a voice of surpassing strength and beauty, and at the age of 30, he was recognised as the leading English tenor. He died on Oct. 25, 1900.

Refectory Architectural term for the common dining hall in a monastery. It was usually placed on the ground floor or sometimes raised on vaulted cellars or even as a detached building. During the meals one of the brethren read aloud from a lectern supported by corbels on one of the side walls.

Referee Arbitrator or judge. The term is used generally for the men who control games at football, boxing matches and other sporting events. In football the referee is usually chosen from a list of old and experienced players, and has no connection with either of the clubs playing. He is paid a fee.

Referees of another kind are lawyers appointed to discharge certain duties in the law courts. The Supreme Court in London possesses three official referees and there are referees to decide matters that arise under the Finance Acts, 1915-27.

Referendum Method in politics by which the people decide in favour of or against a certain proposal. It has long been used in Switzerland and in the states and cities of the United States, but never as yet in Great Britain. It has been used in Australia on several occasions, and there is provision for it in the constitution of the republic of Austria. Several countries, among them Finland, have decided the question of prohibition by a referendum. Since the Great War the referendum has been used in Germany. In 1926 a referendum decided that the property of the former reigning princes should not be confiscated, and in Aug., 1931, another supported the Government in the measures taken against the followers of Adolf Hitler. The President has the power of ordering a referendum.

Refinery Name given to a place where the process of refining or purifying such things as metals, oil, sugar, etc. is carried on. The refining process naturally varies with the character of the product; in a petroleum refinery the process involves fractional distillation by which hydrocarbons such as motor spirits, lubricating and lighting oils, etc., are obtained. In metal refineries the crude metal is purified by furnace methods or electrolysis, and in sugar refining the colour is removed by animal charcoal or other methods.

Reflation Term used during the economic crisis of 1931-32 as an alternative to inflation, or an increase in the amount of currency in existence. It is defined by Sir Arthur Salter as the "raising of the general level of wholesale prices by concerted monetary action, to a selected level, not higher than that of the beginning of the world depression in 1929 and its maintenance at this level hereafter."

Reflection Term applied in optics to the change of direction when a ray of light strikes a surface and is thrown back or reflected in a new path. The degree of reflection varies with the nature of the surface. If the body is opaque and has a rough uneven surface, the light is scattered and by this means the object is rendered visible, but a smooth, polished surface, as in a mirror, reflects nearly all the light, a perfectly reflecting surface being invisible.

Reform Improvement, literally reforming, used chiefly in political life. More especially it is applied to the alteration in the United Kingdom of the method of sending members to the House of Commons.

The act of 1832, which abolished the rotten boroughs and gave votes to householders on a uniform plan, is known as the great Reform Act. In 1932 its centenary was celebrated. Other measures on the same lines were passed in 1867, 1884, 1918 and 1928, when all men and women over 21 received the right to vote. Reform is also used for the proposals to alter the constitution of the House of Lords.

Reformation The religious and political movement in Europe in the 16th century, which ended in the establishment of the Protestant Churches. Its causes are to be found in the abuses prevalent in the Roman Catholic Church during the previous centuries, the new critical spirit, fostered by the Renaissance, and the growing force of nationalistic feeling. In 1517, Martin Luther nailed to the church-door at Wittenberg his famous ninety-five theses, in which he attacked the sale of indulgences. He followed this by a stout resistance to the attempts made by the Pope to suppress him, and was excommunicated in 1520. His followers received the name of "Protestant" from their protest made at the Diet of Spire against a decree which enacted that no change should be made in Church practice and doctrine.

Not all the early Protestants, however, were Lutherans. In Switzerland, Zwingli and Calvin were the leaders of an independent movement, which spread rapidly in France, the Netherlands and (through the influence of John Knox) in Scotland. The name Reformed Churches was given to the bodies established as a result of the Calvinistic teaching, including the Huguenots in France and the Presbyterian Church in Scotland.

The Counter-Reformation was the attempt of the Roman Catholic Church to reform itself in the 16th century and to stem the flow of Protestantism, for which purpose the Papacy summoned the famous Council of Trent.

Reformatory Schools

Schools in Great Britain "for the industrial training of youthful offenders" (Children's Act, 1908). These institutions are subject to periodical inspection by the Children's Branch of the Home Office, and are supported mainly, but not entirely, from public funds. Only boys and girls between the ages of 12 and 16 may be received in such schools, and that after a recorded conviction, and for a period of detention lasting from 3 to 5 years.

Reformed Episcopal Church

Religious denomination. It originated in New York in 1873 when Bishop Cummins seceded from the Episcopal Church of America and consecrated other bishops to act with him. This body has a small following in England (generally known as the *Free Church of England*) and preserves the principle of episcopacy without some of the doctrines and practices which have generally been associated with it in church tradition.

Refraction Term in optics applied to the change in direction when a ray of light passes from one medium to another, becoming bent or refracted out of its rectilinear path into a new one. Thus a stick partly immersed in water appears to be bent at the surface of the water owing to the different refractive indices of air and water, and similarly a coin placed at the bottom of a vessel of water will appear to be out of its true position.

Refrigeration Process of applying cold for the preservation of foods. The simplest method is the use of a freezing mixture of ice and salt, but on a larger scale several types of refrigerating machines are used. In one type refrigeration is obtained by alternately expanding and compressing air, in another a medium such as ammonia is subjected to a cycle of expansion and compression, heat being absorbed from surrounding objects. In still another type a liquid such as carbonic acid or sulphurous acid is vaporized and then mechanically compressed again into liquid form. Refrigerating plant is used extensively in the meat trade and for other perishable products.

Regalia Emblems of sovereignty. They consist of the crown, sceptre, orb and other articles used at a coronation. The British regalia, in which are some priceless jewels, is kept in the Tower of London.

Regatta Name for a meeting where races are held for yachts, rowing boats and other craft. Regattas are held at many watering places. In England the chief meetings are the regatta at Henley, regarded as the great event of the rowing season, and the yachting week at Cowes. See HENLEY-ON-THAMES.

Regeneration Power of renewing lost limbs or organs. It is possessed by animals of the lower orders. Thus the Hydra can regrow lost tentacles, etc., and a whole animal may even grow from a morsel of tissue. The annelids (earthworms), crustaceans (crab), fish, and lizards are able to recreate lost parts in a varying degree. In the higher animals the power is manifested only as that process which replaces lost tissue when a wound heals.

Regeneration Theological term denoting the spiritual change which all experience in becoming Christians. The necessity for it, declared by our Lord to Nicodemus (John iii.), is universally admitted by the Christian Church. Protestant evangelical theologians hold that it is a conscious experience independent of any act or ceremony, attending the incident of conversion. The Roman Catholic position regards baptism as the real point of transition from the natural to the spiritual life, conferring the grace of baptismal regeneration.

Regent One who rules on behalf of a sovereign. When a sovereign is a minor, or is insane or in any other way incapable of ruling, it is usual to appoint a regent to act for him. This was the case in England during the latter part of the reign of George III., when his eldest son, afterwards George IV., was made regent. His powers were defined by Act of Parliament.

In Spain there was a regent, the Queen Mother, during the long minority of the ex-King Alfonso XIII., and in Bavaria there was a regent when King Louis was insane.

Regent's Park Park in London; also the name of the district around it. It is to the north-west of the city in the borough of Marylebone and contains the zoological and botanic gardens. It was laid out in 1812 and named after the Prince Regent (George IV.). The garden was opened to the public in 1838. It covers 473 acres. The Regent Canal, which flows past the park, is part of the Grand Union system.

Regent Street London thoroughfare. It reaches from Waterloo Place to Langham Place, crossing

other important thoroughfares at Piccadilly Circus and Oxford Circus. It was built between 1813 and 1820 and was named after George IV., then Prince Regent. The Quadrant and most of the buildings were designed by John Nash, and it became a great shopping centre. In 1919 the leases, which were crown property, began to fall in, and the shops were rebuilt during the next few years. In June, 1927, the street was formally opened by King George V.

Regillus Small lake in Italy, now drained. It lay to the east of Rome. It is famous because near here, in 496 B.C., the Latins were defeated in battle by the Romans. The story of the battle, used by Macaulay in one of his *Lays of Ancient Rome*, tells how Castor and Pollux, riding on white horses, came to the aid of the Romans and turned the fight in their favour.

Regiment Body of soldiers. Every army is divided into regiments, but the nature of these differ. In the British army the regiment of infantry is not a fighting unit; it is an organization consisting of several battalions with a colonel and a depot for them all. Before the reforms of 1871 the regiment of infantry was a fighting unit; the regiments were numbered according to the order in which they were raised and were called regiments of the line. In the cavalry the regiment is still the fighting unit. The artillery is organized into one regiment the Royal Regiment of Artillery. Each regiment has its colours, but these are no longer carried into action.

Regina City of Canada and the capital of the province of Saskatchewan. It is 360 m. from Winnipeg and is served by both the trans-continental lines, C.P.R. and C.N.R. The city has an enormous trade in wheat and the manufactures include agricultural implements. In 1932 a world's grain exhibition was held here. Before 1910 Regina was the capital of the North-West Provinces and the headquarters of the North-West Mounted Police. Pop. 67,000.

Registrar Any one who keeps a record. In Great Britain there is in every locality a registrar to whom particulars of births, marriages and deaths must be given, and by whom marriages can be celebrated. This work is supervised by the registrar-general at Somerset House, London, who is responsible for the census. There is a registrar-general for Scotland in Edinburgh. There are registrars in the law courts and other registrars are responsible for keeping the names and addresses of the shareholders in public companies.

Registration Act of registering or entering in a register. It is used for the official entries in books kept by a registrar of births, marriages and deaths, and also for recording a great variety of other information for the public use. It is also used for the act of insuring, by paying an extra fee, the safe delivery of letters, articles and luggage. Letters and postal packages can be registered at any post office.

Registration is used also in printing where it means the exact adjustment or correspondence of two pages of printed matter, or in colour photography the correct impression and combination of the various tones. It is used in music for the act of combining the stops of an organ and in photography for making the focusing screen correspond with the plate or film.

Regulator Device for regulating the working of various indus-

trial processes or machinery, either in relation to proper conditions of temperature, humidity, speed, pressure, etc., or voltage, density of current, etc., in electrical apparatus, timing of operations or of steam pressure in engines. Many different types of regulators are used, some being self-operated, others worked by air, steam or electricity. Examples are the timing devices used in dyeing and vulcanising, rheostats and tachometers, and flow-meters.

Regulus *Marcus Atilius*. Roman general. Victorious over the Carthaginians several times, he was defeated by them in 255 B.C., and held in captivity five years. In 250 B.C., according to tradition, the Carthaginians sent Regulus, under parole to sue for peace. He strongly advised the Senate to reject their proposals, and resisting all efforts to make him break his promise to return went back to Carthage, where he was put to death.

Rehoboam King of Judah, 10th century, B.C. Son of Solomon, his accession occasioned a revolt of the N. tribes and their separation as the kingdom of Israel under Jeroboam (q.v.), leaving to Rehoboam only Judah and Benjamin. Reigning 17 years, he fortified 15 towns, mostly in southern Judah, against the Egyptian King Shishak, who destroyed them and despoiled Jerusalem.

Reichstag Name used for one of the houses of the legislature of the federal republic of Germany. It means "the day of the empire," and was used for the assemblies or diets called together by the rulers of the empire that lasted until 1806. In 1870 the name was given to the elected assembly established in Berlin for the new German Empire, and it was retained in 1919 by the republic. Its members number 490, who are elected by all men and women for four years.

Reigate Borough of Surrey. It is 23 m. from London, on the S. Ry. From 1295 to 1887 Reigate was separately represented in Parliament. It has an agricultural trade and is a residential district for Londoners. Redhill is part of the borough. Pop. (1931) 30,830.

Reign of Terror Phrase used for the culminating period of the French Revolution. It began in July, 1793, when the Jacobins formed the committee of public safety. Hundreds of persons, including Marie Antoinette and many aristocrats, were sent to the guillotine. The leaders then turned upon one another and Danton and Robespierre were put to death. The latter event took place on July 28, 1794, which may be regarded as the end of the Reign of Terror. The committee of public safety was replaced by the Directory.

Reincarnation Belief that the soul returns to human life after death. This theory had been held in many parts of the world and is a cardinal tenet of modern theosophy. Pythagoras enjoined abstinence from flesh diet, on the ground that all living things were akin. Plato taught that birth was not the creation of a soul, only its transmigration from one body to another.

Reindeer Sole species of deer antlered in both sexes (*Cervus* or *Rangifer tarandus*). Standing 4 ft. high at the shoulders swift-footed, it is brownish-grey, with whitish face and neck; the antlers are more or less palmated. The European form, which reached to the Pyrenees in the early stone age, has long

been domesticated, especially by the Lapps, large herds being maintained for their milk, flesh and hides. The untamed form inhabiting Canada is called the caribou (q.v.).

Reindeer River and lake of Canada. The river issues from Reindeer Lake and flows in a north-easterly direction until it joins the Churchill. The lake is a large sheet of water, chiefly in Saskatchewan, but partly in Manitoba. It is about 200 m. long and contains hundreds of islands.

Reindeer Moss (*Cladonia rangiferina*). Widespread species of lichen, native of Britain and especially abundant in high latitudes. Comprising an intermingled mass of much-branched tubular structures, 2 to 12 in. high, it covers barren plains in Lapland and elsewhere, being the reindeer's winter food.

Reinhardt Max. Famous Austrian theatrical producer. He was born near Vienna, Sept. 9, 1873, making his first stage appearance in Salzburg in 1893. The next year he was appointed to the Berlin *Deutsches Theater*. During his connection with this and other theatres he has practically revolutionised stage presentation, making it essentially dramatic rather than literary. He has produced many plays in different European cities, and some striking ones in New York.

Relapsing Fever Acute infectious fever due to a specific micro-organism. Also called seven-day fever, it has prevailed at intervals since the mid-18th century in Britain, Central Europe, Russia and the Levant, destitution and overcrowding being predisposing causes. It manifests varying symptoms in India, China, Africa—sometimes called there tick fever—and the Panama-Colombia region of tropical America. After developing for several days it subsides spontaneously with profound perspiration, but tends to recur; most cases ultimately recover from it.

Relativity Mathematical theory of the universe first put forward by Einstein in 1905. In it he postulated first, that absolute motion has no observable effect upon physical phenomena, or in other words, that all physical phenomena are so constituted that it is not possible to observe by their means absolute motion; and second, that the rate of travel of light is the same in all directions at a given place, and its value is constant for all places in the universe, no matter what may be the relative movements of the earth or other system of reference involved. The experimental research of Michelson, and the speculations of Fitzgerald and Lorentz paved the way for Einstein's investigations. In the theory of relativity the ideas of force and the action of one body upon another are rejected and inertia and gravitation are shown to be equivalents of one another.

Relievo Term in art derived from the Italian and used for a modelled surface as distinct from sculpture in the round, for decorating walls and other flat surfaces in buildings. When the object is in low relief or less than half its natural projection, the term *baso relievo* is used; in middle relief it is termed *mezzo relievo*; and when more than half its natural projection, *alto relievo*. An example of relievo work is seen in the Baptistery gates at Florence.

Religion No completely satisfactory definition of religion has yet been offered. Luebs, in his *Psychological Study*

of Religion, discusses no less than forty-eight different definitions. The term, however, may be said to indicate an attitude of reverence to the Supreme Being, together with the resulting system of behaviour (including worship).

It seems probable that man's religion began in nature worship. To primitive man the world contained many objects, which, because they appeared to possess mysterious powers, he believed to be inhabited by spirits. Hence he came to think of his world as full of deities needing to be propitiated by worship and sacrifice. Thus polytheism arose, particular tribes choosing deities regarded as specially favourable to them. In the higher forms of polytheism (e.g., Brahmanism) the many gods came to be regarded as so many impersonations of the attributes belonging to the one God; but polytheism was not finally transcended until Judaism, followed by Islam and Christianity, arrived at a faith in which monotheism was absolutely fundamental.

Remainder Legal term for a bequest of land or other real property to a person after the death of another. It was very usual before 1925, but since the legislation of that year land can only be bequeathed like other forms of property. The same end can be secured, but by different means.

Rembrandt Rembrandt Harmensz van Rijn, Dutch painter. He was born at Leyden on July 15, 1606, studied painting from an early age, and began as an etcher. In 1631 he settled in Amsterdam, and devoted himself to his work with great diligence. His output was enormous and there remain still about 600 paintings, 2000 drawings, and 300 etchings. These include landscape work and portrait studies, of which his studies of old age are particularly noteworthy.

He was the leader of the reaction against Italian influence in the Dutch school, and strove to replace artificial classicism with colourful paintings from nature. He combines in his work a noticeable power with a peculiarly delicate skill. He died on Oct. 4, 1669.

Remembrancer Public official. In England the King's Remembrancer is a high official in the law courts, the office being held by the senior Master of the Supreme Court. In Scotland he is a high official of the Court of Session. The City of London has also a Remembrancer, who is one of the chief officials of the corporation.

Remington Philo. American inventor. Born in Litchfield, New York, Oct. 31, 1816. He achieved fame as the inventor of the first type-writer, and also of a breech-loading rifle. He died on April 4, 1889.

Remus Brother of Romulus (q.v.), with whom he is fabled to have founded Rome, and by whom he was slain.

Renaissance The. Revival of art and letters in Europe during the 15th and 16th centuries. In 1453 Constantinople was captured by the Ottoman Turks. Their advance accelerated the migration to Italy of Greek scholars, who brought with them their knowledge of the Greek language and gave a strong impetus to the new learning. The literature of ancient Greece and Rome was studied with great ardour, and the search for old manuscripts was pursued by princes as well as scholars. The movement was aided by the invention of printing by John Gutenberg of Mainz in 1438. In England

the Renaissance was associated especially with the names of Sir Thomas More, John Colet, and Erasmus.

Renan Ernest. French historian and philologist. He was born in Brittany on Feb. 27, 1823. Educated originally entirely under clerical influence, with a view to entering the church, he was forced to abandon traditional Christianity as the result of his study of Hebrew and of German criticism. His *Vie de Jesus*, the first of a series of studies on the origins of Christianity made him famous throughout Europe. Among his other numerous works are studies of St. Paul and Marcus Aurelius, and a history of the people of Israel. He died on Oct. 2, 1892.

Renfrew Burgh and seaport of Renfrewshire. It is on the Clyde, 5 m. from Glasgow, and is served by the L.M.S. Rly. Renfrew is a shipbuilding centre and has docks. There are also engineering works and other industries. There is an aerodrome at Moorpark. Pop. (1931) 14,986.

Renfrewshire County of Scotland. In the south-west of the country, it is quite small, being only 240 sq. m. in extent. The Clyde cuts it into two unequal parts. Renfrew is the county town but much of the county business is done at Paisley. The southern and western parts are agricultural districts, but in the north are Paisley, Greenock, Port Glasgow, and parts of Glasgow. There are hills in the south; the rivers are tributaries of the Clyde. Pop. (1931) 288,575.

Reni Guido. Italian painter. Born at Calvenzano, near Bologna, on Nov. 5, 1575, after studying with Ludovico Carracci, he went to Rome in 1599 and again in 1605. He painted there his famous "Aurora and the Hours." He returned to Bologna after a quarrel with the papal authorities and died there on August 8, 1642. He was famous also as an etcher, and is noted particularly for his colour and expression, and the accuracy of his drawing.

Rennes City of France. It is the capital of the department of Ille-et-Vilaine and the ancient capital of the Duchy of Brittany. The town was burnt down in 1720 and rebuilt in the style of the period in grey granite. The most distinguished building is the Palais de Justice which was completed in 1654 as the seat of the parliament of Brittany. It has a broadcasting station (272 M., 1.3 kW.). Pop. 83,418.

Rennet Substance contained in the membranous lining of an unweaned calf's fourth stomach. It is used for curdling milk, especially in cheesemaking. It comprises gastric juices including a ferment, rennin, which affects the coagulation. It is used by softening the salted lining or vell and adding portions to the milk, or in the form of an extract.

Rennie John. Scottish engineer. Born June 7, 1761, he achieved fame as a bridge builder, designing among others the Southwark, Waterloo and London Bridges, and also docks at London, Liverpool, Dublin, Greenock and Hull. As a harbour designer he did notable work in the ports of the south coast, including the breakwater at Plymouth. He died Oct. 4, 1821.

Rent Payment made for the use of land or buildings, made by the tenant to the landlord, weekly, monthly, quarterly or as arranged. Arrears of rent are recoverable by process of law, but the landlord cannot now, as he could before 1914, distain without

applying to the court for permission to do so. A payer of rent is entitled to deduct the income, or property, tax paid by him from the amount handed over to the landlord.

In theory rent is fixed by an economic law. It is the amount which one will pay for land that is of greater value than no-rent land as it is called. The net value of the crop produced on such land over the value of that produced on no-rent land will be paid by the tenant for its use because the land is worth that much and no more to him. The same principle is true of site values. A man will pay for a site in Regent Street, London, the amount by which that site exceeds, in productive value to him, a site in the country.

This theory, however, needs qualification. As regards agricultural land, capital has been put into it in buildings, drainage, etc., so that rent is for the most part interest on capital. The rent paid for sites of great value because they are in populous centres is another question and there is some justification for treating these in an exceptional way in matters of taxation.

RENT RESTRICTION. In 1915, to deal with the changed conditions due to the Great War, it became desirable to restrict the power of landlords to raise rent, as the serious shortage of houses would have enabled them to do this to a very considerable extent. At first only temporary, the restriction has been continued by a series of Acts of Parliament.

The Acts apply to dwelling houses built on or before April 31, 1919, where the standard rent does not exceed £105 in London, £90 in Scotland, and £75 elsewhere. House in this sense does not include any part of a dwelling house let off separately, or furnished houses or rooms. The standard rent is that which was paid in August, 1914.

Where a house comes under the Act, the landlord can increase the standard rent by 40 per cent. If he does all the repairs. He can also increase it to recover any amount which he has paid in increased rates. If the tenancy of a house comes to an end the landlord can have the house decontrolled, and can then charge for it any rent he can get, as can the landlords of houses built since 1919.

In 1937 a committee reported upon the subject of rent restriction, advising that it should be discontinued for the larger houses, but continued for the smaller ones. It estimated that of 7,500,000 houses in existence before 1914 some 6,350,000 were still subject to the rent restriction laws.

Rentes Name given in France and Italy to part of the public debt. Rentes are the equivalent of consols in Great Britain, being issued to investors and then bought and sold on the stock exchanges.

Rentier One who receives a fixed income on investments in government and other securities. In 1930-32 much was heard of the rentier who was said to be in a very favoured position owing to the fact that, while prices and many incomes had fallen, his own income had remained stationary and was, therefore, in terms of commodities, larger than before.

Renton Town of Dumbartonshire. It is 3 m. N. of Dumbarton, and 16 m. from Glasgow by the L.M.S. Rly. Situated on the Leven, the town has cotton industries. Here Smollett, the novelist, was born.

Repairs In connection with property, making good damage due to wear and tear. The duty of keeping a house

in repair falls, by English law, on the landlord in the case of small houses, which are defined as those worth not more than £40 a year in London, £26 a year in larger boroughs and urban districts, and £16 elsewhere. In other cases repairs are a matter of contract. To take a house on a repairing lease is to undertake to keep it in good repair and to leave it, at the end of the tenancy, in as good condition as it was when taken.

Reparations Term used especially for money and kind by Germany as compensation for the damage done by her troops during the Great War. The principle that reparations must be paid was laid down in the Treaty of Versailles, and a commission appointed to fix the amount. Various sums were suggested, and in 1921, at a conference held in London, the amount was fixed at \$6,600,000,000 to be paid over a period of years. A payment was made, but the scheme soon proved impossible, and a moratorium was granted to Germany.

In 1923 a committee was appointed to inquire into the subject and a plan, called the Dawes Plan, was agreed upon. This provided for the payment by Germany of certain sums to France, Great Britain, Italy and Belgium, but the total amount was not fixed. Under this plan payments were regularly made until 1928, when it broke down. Another committee then inquired into the matter and the Young Plan was evolved. By this the total sum payable was fixed and Germany was to pay it in annuities ending in 1938. The economic and financial paralysis of 1930-32 made this plan inoperative, and in June, 1931, a moratorium of one year was granted to Germany. Before the end of this period Germany stated that she was unable to meet her liabilities in connection with reparations, and in June, 1932, a European conference met at Lausanne to effect, if possible, a permanent settlement. This decided to abolish reparations, provided a settlement about war debts was reached. In return, Germany undertook to contribute \$150,000,000 towards European reconstruction.

REPARATIONS PAYMENTS. The following figures are extracted from a return published in June, 1932 :

RECEIPTS OF REPARATIONS			
	Paid by Germany	Paid by Other Countries	War Debt Received
United States ..	\$16,700,000	—	\$424,400,000
Great Britain ..	121,000,000	\$200,000	71,300,000
France ..	273,000,000	800,000	100,000
Italy ..	55,700,000	1,400,000	100,000
Belgium ..	126,900,000	100,000	—
Yugoslavia ..	34,200,000	2,300,000	—
Rumania ..	5,800,000	300,000	—
Portugal ..	4,200,000	10,000	—
Greece ..	2,100,000	1,000,000	—
Japan ..	4,000,000	10,000	—

PAYMENTS OF WAR DEBTS			
Great Britain	\$335,900,000	Yugoslavia	\$1,500,000
France	109,400,000	Rumania	1,800,000
Italy	31,400,000	Portugal	1,900,000
Belgium	7,300,000	Greece	1,700,000

Repertory Theatre Theatre in which a semi-permanent company gives a repertoire of plays. The term is more widely used in England to denote a theatre in which a resident company gives a new play at frequent intervals. The most famous repertory theatre was Miss Hertiman's Company at the Manchester Gaiety Theatre, from 1907-16. The oldest existing one is at Liverpool, which has produced many new plays by English and Continental authors.

There is also a famous one at Birmingham, under Sir Barry Jackson, and others on a non-commercial basis in different parts of the country. Among the most famous is the Abbey Theatre, Dublin.

Reporter Journalist who makes reports of meetings, etc., for newspapers. Every paper has its staff of reporters, who work under the news editor, and attend meetings of all kinds to report speeches. A knowledge of shorthand is essential. Cases in the law court are also taken down by reporters or shorthand writers. There is an official staff for reporting the debates in the House of Commons; formerly it was done by the firm of Hansard. See JOURNALISM.

Repoussé Form of metalwork. It consists of a raised pattern produced by hammering on the reverse side. Many brass articles are ornamented in this way; it is also used for silver.

Representation In politics to take the place of other persons. The word also means to reproduce, describe or bring to the mind. To-day all civilized countries possess representative institutions, as they are called. Under this system the people, unable, owing to their numbers, to rule themselves directly, elect certain persons to do this for them. These representatives are responsible to those who elect them because the latter can refuse to re-elect them at the end of their term of office.

The system arose in England in the Middle Ages, when districts were asked to send men to the county courts for a particular purpose, e.g. to state who owned certain land, or who had committed a certain crime. These men were chosen by their fellows and were therefore representatives. From this local representation developed the central representative assembly of Parliament (q.v.). In time other countries followed the example of England until representative government has become the rule. Since the Great War, however, there has been a movement away from it and neither the Fascism of Italy, nor the Soviet system of Russia can properly be called representative.

Representatives Name of the lower house of Congress of the United States and of the Parliament of the Commonwealth of Australia. The former consists of 435 members, elected for four years and paid salaries, as well as two delegates and two commissioners from territories outside the United States. Its president is the Speaker. All legislation needs its assent, but it differs from the House of Commons in that no minister can sit and vote therein. They can attend and speak.

The Australian House consists of 76 members who are paid salaries and elected for three years, or less. It is under a Speaker and resembles the British House of Commons. In both the United States and Australia there are arrangements for increasing or decreasing the number of members from the several states according to changes in population.

Repression Term used in psychoanalysis to describe instinctive tendencies and memories which are repressed into the unconscious mind. Though repressed, they remain active and may express themselves indirectly in conduct as neurotic symptoms. See INHIBITION, UNCONSCIOUS, SUBCONSCIOUS.

Reprieve Release or respite, but more strictly the suspension of a

sentence of death. In Great Britain a person sentenced to death can be reprieved by the king acting on the advice of the Home Secretary, and this is sometimes done.

Reprisals Retaliation, especially in time of war. There were cases of reprisals during the Great War especially in connection with the bombing of towns from the air and the treatment of prisoners of war.

Reproduction Process of propagation. It may be asexual or sexual. In protozoa new individuals arise by fission of the adult cell or by budding. In the lower metazoa (multicelled animals) these asexual processes serve also, but in the great majority of the metazoa the sexual form is the rule. The gametes (sperm cell and ova) conjugate and a new cell is formed which becomes the embryo, undergoing in turn segmentation, gastrulation, and thereafter the gradual growth of differentiated tissues and organs within the egg envelope, or safely enclosed within the body of the female parent. Some organisms are hermaphrodite, and in others parthenogenesis—development from egg-cells without fertilisation by the male—may occur. In yet other creature sexual and parthenogenetic generations may alternate. See EGG, EMBRYOLOGY.

Reptile Class of vertebrate animals ranking above amphibians and fishes but below birds and mammals. All bear epidermal layers of scales, often shed and replaced. They are cold-blooded with three-chambered hearts, breathe by lungs, never by gills, and bear eggs, sometimes hatched within the mother's body. Except some herb-eating tortoises, all are flesh-eating. Five orders exist: lizards, snakes, crocodiles, tortoises and one, formerly important, now represented solely by the iguana-like tuatara of New Zealand. Five other orders, which flourished in the mesozoic age, containing the giants of the class, are extinct. Known only from their fossil remains, they include dinosaurs, ichthyosaurs, plesiosaurs and pterodactyls.

Repton Village of Derbyshire. It is 5 m. from Burton-on-Trent, on the L.M.S. Rly., and was once the chief town of the kingdom of Mercia. The church is partly Saxon.

Repton School dates from 1557, its founder being Sir John Port. It has accommodation for about 500 boys.

Republic State in which there is no hereditary sovereign, the opposite of a monarchy. Most of the Greek states were republics and Rome, before the time of Augustus, was a great republic. Republics were rare from that date until the revolt of the American colonies and the French Revolution, Venice and the United Provinces of the Netherlands being the exceptions. France was a republic for a short time after the deposition of Louis XVI. and again in 1848. The present republic dates from 1871.

In the 19th century several republics came into being, especially in Europe and S. America, and there were a number of new ones after the Great War, including Germany, Austria, Turkey and in a sense Russia. Spain was added to the number in 1931. The method of government in a modern republic is very like that in a monarchy, except that a president is elected for a certain period, usually four or seven years.

Republican One who believes in a republic, but more exactly a member of one of the two great political

parties in the United States, the other being the Democrats. The party is descended from the anti-federalists of Washington's time, and since the Civil War has been dominant except for a few years. Nearly all the presidents since Lincoln have belonged to the Republican party, Woodrow Wilson being an exception. Harding, Coolidge and Hoover have all been Republicans. The party is strong among the business men and in the north; it stands for high protection and an extension of the power of the National Government.

Requiem In the Roman Catholic Church a mass sung for the repose of the soul of a dead person. It is also the name of a musical composition in honour of the dead which is played at funerals and similar services.

Reredos Screen at the back of an altar in a cathedral or church. Some are of stone adorned with statues and other forms of carving; others are of wood with paintings thereon. There are some magnificent examples in English cathedrals: e.g., at Winchester.

Research Industrial. Scientific study of manufacturing and raw material problems in industry. Processes used for ages in industries became the subject of special study only within recent times. Research is now carried out by manufacturers and associations and by governments. In Great Britain the Department of Industrial Research controls the geological survey and the National Physical Laboratory, and conducts investigations in building, chemistry, food, forest products, fuel, radio and water pollution.

Reservation In ecclesiastical usage the practice of keeping the elements that have been consecrated at the Mass or Eucharist for future use. In the Roman Catholic Church these elements, having become the body and blood of Christ, called the Host, are kept where worship can be paid to them.

The prayer book of the Church of England allows the reservation of the elements in order that the sacrament can be administered without delay to the sick and dying, but forbids their worship or adoration. Nevertheless, the custom of reserving the elements where they can be worshipped is practised by many of the High Church clergy. The difficulty of reconciling the conflicting ideas on reservation was one of the chief reasons why the revised Prayer Book was rejected by the House of Commons in 1928-29. The compromise suggested by the bishops allowed reservation but forbade adoration.

Reservoir Structure or enclosure for storing water in large quantities for supplying towns, etc. In some cases a natural lake or an artificial one made by damming a stream is used to store the surface waters over a large area. Another type of storage reservoir is constructed by damming a valley, or it may be entirely artificial, the water being conveyed by an aqueduct or pumped in from a river.

Resident In a special sense the representative of a country in a foreign land. The term is confined to men sent to represent their country in a state that is under its protection. Thus the Government of India has residents in the capitals of the native states.

Resin Substance which occurs as an exudation from some plants. It appears in globules, which become hard when

exposed to air. Resins are insoluble in water, but soluble in alcohol and some oils, and are very inflammable. The soft resins are malleable and are used in medicine as an ointment ingredient, while the hard resins are used chiefly as varnishes, such as mastic, copal and sandarac.

Resistance Term in electricity for the measure of the opposition of a conductor to the passage of an electric current, the practical unit being the ohm (*g.v.*). All substances offer some resistance to a current, but the amount varies with the nature of the material, its length and cross-section. Metals offer little resistance and copper the least, hence its use as a conductor. With an increase of temperature there is an increased resistance.

Resolution Formal proposal put before a meeting of any kind. It is usual for a resolution to be proposed and seconded, and then discussed and voted upon. Any alteration in it must be begun by proposing and seconding an amendment. If this is accepted the resolution may be altered to include the amendment, and then either accepted or rejected. The House of Commons does some of its business by resolutions. Taxes and duties are put before the House as resolutions before they are included in the Finance Act.

Resonance Sympathetic vibrations of two or more objects, due to the coincidence of their vibratory periods. A common example is the greatly increased vibration of some swing bridges, due to the tramp of marching troops. The order is usually given to "break step."

Respiration Process in both plants and animals by which oxygen is absorbed into the body and some of the products of combustion, viz., carbonic acid and water, are removed. In unicellular organisms oxygen is absorbed over the general surface, but in the more complex animal types special respiratory organs appear. In aquatic forms such as fishes respiration takes place through the gills, but in the land animals by means of lungs and the air passages from the mouth.

Rest Harrow Low growing perennial shrub (*Ononis spinosa*), of the leguminosid order. Sometimes of creeping growth, sometimes more erect, the taller growth is spiky, the lower covered with viscid hairs. The toughness of the rootstock, both on and beneath the ground, is so great that it is said to arrest the harrow when clearing the ground, so giving rise to its popular name.

Restigouche River of New Brunswick. It rises in the W. of the province and flows mainly E. until it falls into Chaleur Bay. It is 225 m. long and during part of its course forms the boundary between Quebec and New Brunswick. It is famous for its salmon fishing.

Restoration Act of restoring. It is used specially for the restoration of a sovereign, or his successor, to a throne. The most notable instance in English history was the return of Charles II. in 1660, which is called *The Restoration*. Other famous restorations were those of the Bourbons in 1814 and again in 1815.

Resurrection Rising again of the body and its reunion with the soul. Very few traces of this Christian belief are to be found in the Old Testament.

It appears to have developed during the period "between the Testaments," probably owing to the Persian influences of the Exile. By New Testament times the doctrine had been accepted by the Pharisees in opposition to the Sadducees. The Christian belief in the Resurrection is based on the rising of Jesus from the tomb, and His appearances to the disciples. See IMMORTALITY.

Resurrection Men Popular term in England between 1760 and 1835, used to denote a class of men who drove a flourishing trade by exhuming newly-buried corpses and selling them to the medical schools for dissection. The practice is referred to by Dickens in his *Tale of Two Cities*.

Reszke Jean de. Polish singer. Born in Warsaw, Jan. 14, 1856, he was educated at the university there. He studied in Italy and soon made his first appearance in opera. He appeared in London in 1875 and regularly from 1888 to 1900. Beginning as a baritone, he became a tenor and was regarded as one of the finest tenor singers in the world until his retirement in 1914. He died on April 3, 1923.

His brother, Edouard de Reszke, was born at Warsaw, 1855. He became a famous bass, and appeared at Covent Garden with his brother from 1888 to 1900. In later life he taught singing. He died May 29, 1917.

Retaining Wall Term in civil engineering applied to a wall which supports a bank or terrace, preventing horizontal movement of the material. Retaining walls are employed for supporting embankments, quays, canal banks, reservoirs, weirs, mountain roads, etc., their form and construction varying greatly with the character of the forces brought to bear upon them.

Retford East. Borough and market town of Nottinghamshire, on the Idle, 138 m. from London, by the L.N.E. Ry. There are corn mills, engineering works and other industries, and also a trade in agricultural produce. Pop. (1931) 14,228.

Retina Innermost layer and lining membrane of the cavity of the eyeball. The retina is an expansion of the optic nerve and forms the receiving nervous surface upon which images are formed by light rays entering the eye. It consists of twelve layers, the most important being the layer of rods and cones which transmit visual impulses to the optic nerve and brain.

Retort Vessel or chamber used for distilling or volatilising substances by the aid of heat or chemical action, the volatile products being conveyed to a receiver for condensation. In the chemical laboratory retorts of glass, earthenware, etc. are used, but for manufacture of coal gas on a large scale the retort takes the form of a large iron or fire-clay chamber, and in the extraction of zinc, mercury, etc. from their ores, special iron or fireclay vessels are used.

Retriever Sporting dog. There are four varieties. The flat haired is evolved from the mating of a setter and a Welsh collie sheep dog. The curly haired has a poodle strain and is good either in water or in the field. The golden haired is highly ornamental and has all retriever qualities. The Labrador, besides being an excellent gun dog, is popular as house dog and pet. It has a smooth, black coat.

Returning Officer Official responsible for the proper conduct of an election. In Great Britain the returning officer is the mayor or provost of the boroughs, and the high sheriff in the counties. To him the writ is addressed and he is responsible for the arrangements for the election, and for the counting of all votes and the declaration of the result. The bulk of the work is done by the clerk to the county council and his staff.

Réunion French island. It is in the Indian Ocean, 420 m. E. of Madagascar. It was discovered by the Portuguese early in the 16th century, annexed by France in 1649, and occupied by Britain between 1810 and 1814. The capital is St. Denis, the chief port Point-des-galets and the island is 965 sq. m. in area. Pop. (1926) 186,637.

Reuss German district. It was formerly two principalities, Reuss-Greiz, ruled by the elder line and Reuss-Schleiz-Gera, by the younger line. At the close of the World War, they became part of the republic of Thuringia. The district, which covers an area of 450 sq. m., is situated N. of Bavaria and W. of Saxony. More than a third of this is forest land. Pop. 226,000. Before 1918 the principalities were ruled by a family who all bore the Christian name Heinrich.

Reuters International agency for the collection of news for the Press, founded by a German, Paul Julius de Reuter, in 1849. He began with a pigeon post between Brussels and Aix-la-Chapelle and in 1851 he became a British subject, and started a news agency in London. He controlled the business, which became a limited company in 1865, until his death, Feb. 25, 1899. In 1916 Reuters was bought by a syndicate. The headquarters are on the Thames Embankment, London, E.C.

Reval Capital and seaport of Estonia, on the S. coast of the Gulf of Finland, 250 m. from Petrograd. It is also called Tallinn. At the beginning of the Great War, the province, of which it was the capital, was a part of the Russian Empire. After the war, it was established as an independent republic, with its own National Council meeting at Reval. Reval has extensive shipyards and exports textiles, timber, paper, etc., of local manufacture. An International Industrial Fair is held each year in June. Pop. (1931) 131,594.

Revelation Book of. Last book of the Bible. It is the only example contained in the New Testament of an extensive Jewish apocalyptic literature (cf. Book of Daniel in O.T.). The book is typical of apocalyptic writings in that (1) it arose out of conditions of terrible trouble (the persecution of the Church by Domitian); (2) its message is expressed in a mysterious form of dream and vision; (3) it seeks to comfort those who are sorely tried in the present, by bidding them look forward to a great divine triumph in the future.

Revelstoke Baron. English financier. Born in 1863, John Baring succeeded to the barony on the death of his father, the first Lord Revelstoke, in 1897. He was a partner in the banking firm of Baring Bros., a director of the Bank of England and a privy councillor. He died in 1939.

Revenue Term applied to the income of a government or state. It is largely derived from taxation, direct and indirect. See TAXATION; CUSTOMS; EXCISE.

Reversion Term in biology applied to the fact that species tend to reproduce in some of their characteristics some ancestral type. In domesticated animals where different breeds have been crossed there is a tendency to an occasional reversion to an ancestral form, and this may occur also in pure breeds. In some cases the reversion appears to be the result of some irregularity in development of the germ cell. In the case of atavism a feature is reproduced in the individual that was present in a former generation.

In law **reversion** means the right which remains to the grantor of property when the agreement made by him with the grantee expires, e.g., the owner of land who grants a lease of it for a term of years is said to have the reversion of it on the termination of the lease.

Revival Renewal of interest, chiefly used for periods when great interest is taken in religious matters. Protestant evangelicals believe in revivals, which are also popular in some parts of the United States. One of the greatest religious revivals was associated with the name of John Wesley. A revival of another kind was the revival of learning in the 16th century, usually called the Renaissance (q.v.).

Revolver Type of pistol having a revolving cylinder containing a number of chambers for cartridges, which are fired in turn by a one-lock mechanism. The modern revolver is self-ejecting and in the automatic type the force of the recoil is utilised to eject the empty cartridge, cock the revolver and reload it.

Revue Theatrical production. It is a medley, partly musical, and containing topical allusions in its songs and speeches. It was introduced into Britain from France in the 20th century and became very popular after the Great War. When it originated in France, it was a satirical and humorous review of the events of the year and was produced in December. It was called in full *La revue de fin d'année*.

Reykjavik Town and capital of Iceland. It is on the coast at the S.W. corner of the island. It has a cathedral and a university and is the seat of the Althing, or parliament. Its broadcasting station operates at 1200 M., 21 kW. It exports fish, skins, and butter. Pop. (1928) 25,217.

Reynolds Sir Joshua. English painter. Born at Plympton in Devonshire, July 16, 1723, he studied art under Hudson, himself a leading portrait painter, and soon surpassed his teacher, becoming the first president of the Royal Academy in 1768. The following year he was knighted, and in 1784 received the appointment of painter-in-ordinary to George III. His friends included such distinguished men as Burke, Johnson and Goldsmith, whose portraits are among his finest works, which include the famous "Mrs. Siddons as the Tragic Muse." He wrote the *Discourses*, a series of addresses on art. He died Feb. 23, 1792.

Rhadamanthus In Greek legend one of the judges of the dead in Hades. A son of Zeus and Europa he was made a judge because of his reputation for justice.

Rhayader Market town of Radnorshire, on the Wye, 213 m. from London by the G.W. Ry. It is a centre for the sale of sheep and farm produce generally.

About 4 m. from the town, among the hills, are the huge reservoirs that supply Birmingham with water.

Rhea American ostrich, represented by three species, all found in the pampas of S. America. It has three toes on the feet, unlike the African ostrich, which has two, and is smaller than the African bird. The eggs are laid in a shallow excavation on the ground, and the male is said to hatch them.

Rhea In Greek legend a daughter of Uranus and Ge (the earth). She was the mother of Zeus, Hera, Poseidon and Pluto, and was worshipped as the goddess of fertility. She is represented in art as wearing a crown and attended by lions.

Rheims City of France, 98 m. E.N.E. of Paris. Founded in pre-Roman times, it became Christian in the 3rd century. Here Clovis (q.v.) was baptised in 496, and later kings were consecrated here, including Charles VII. in 1429, at the instance of Joan of Arc, who won the city back from the English. Rheims is famous for the cathedral of Notre Dame, begun in 1212, one of the finest examples of Gothic architecture, its facade having been one of the greatest mediaeval masterpieces. Another notable monument is the Mars Gate, a triumphal arch, probably of the 3rd or 4th century. During the Great War the city suffered severely, even the cathedral being extensively damaged by the German bombardment. Restoration was carried out after the War.

Rheims is an important centre of the woollen industry, and the manufacture of champagne is important. Pop. 100,998.

Rheostat Electrical instrument devised for varying an electrical resistance in a circuit and used in diverse forms for controlling direct-current motors, as motor starters, and in wireless apparatus. In one type, the circuit is connected with a movable arm whose free end is moved over a series of brass studs, each connected with a resistance coil and the end one with the circuit.

Rheumatic Fever or Acute Rheumatism. Disease characterised by inflammation and pain in the joints, with fever. In young persons the heart is very likely to become affected. The attack, which continues for a period varying from two to six weeks, may sometimes be marked by little pain and slight increase of temperature. In fact, "growing pains" of children are often a manifestation of such an attack. Any indication of acute rheumatism demands immediate attention by the physician. See RHEUMATISM.

Rheumatism Popular name for various painful diseases of joints or muscles, including lumbago; fibrositis, or inflammation of the fibrous tissue of muscles; rheumatoid arthritis, or inflamed membranes and fibrous tissue of joints; and acute rheumatism, or rheumatic fever (q.v.). Inflammation and stiffness with great pain are associated with all these conditions. The so-called "growing pains" of children are due to acute rheumatism. Rheumatoid arthritis is brought about by bacterial infection originating perhaps at some distant focus such as teeth or tonsils. Chronic rheumatism is often caused by a septic focus in teeth, tonsils, nose or digestive tract, etc.

•Treatment should aim at removing the infective cause and raising the general health. Spa treatment, massage and the use of electrical

appliance offer the best hope of relief. Five drops of tincture of iodine in a wineglassful of water once or twice daily is usually beneficial, and intestinal poisoning may be remedied by a course of bacillus acidophilus emulsion or a lactic acid preparation. Attention should be paid to the diet, omitting salt and sugar as much as possible, and replacing meat, with dairy products and vegetables.

Children with a tendency to rheumatism should have plenty of good food, fresh air, warm clothing and rest, with a limited meat diet. Damp garments, exposure to a damp atmosphere, fatigue and heart strain must be especially guarded against.

Rhine European river. It rises near the St. Gothard Tunnel and flows for the first 250 m. of its course through Switzerland, the next 450 through Germany, and the last 100 through Holland, where it divides into the North and South, the south branch joining the Mease, while the north empties itself into the Zuider Zee. It is connected with central and southern France by the Rhine-Rhone and Rhine-Marne canals, and with the Danube by the Ludwigskanal. From the earliest times it has been one of the chief waterways of Europe and formed a natural defence for the Roman Empire against the barbarians. Its total length is 800 m. and the area of its basin 75,700 sq. m.

Rhineland German province, on the W. of Prussia, bordering on Belgium and Luxembourg, and drained by the Rhine and its tributaries. It has a population of 7,256,978 and an area of 9478 sq. m., nearly a third of which is forest land. The Rhineland contains the important vine-growing district of the Moselle, the famous Ruhr coal-fields and a number of great industrial centres, including Essen, Düsseldorf and Cologne.

Rhinitis Affection of the nose arising from inflammation of the mucous membrane. Cold, dust, acrid fumes, or pollen from grass or flowers may induce an attack. It takes the form of acute catarrh, accompanied by thick mucous discharge. In severe attacks the discharge may contain pus and blood from sores which form. In the dry form the nose becomes crusted inside with dried particles of discharge and is cleared and healed with difficulty.

Rhinoceros Ungulate mammal of the order *Perissodactyla*. A clumsy, heavily built animal 5 to 6 ft. high at the shoulders, it is timid and nocturnal, frequenting swampy regions, where it feeds on herbage, young shoots, etc. There are one or two horns, on snout or forehead. In the Indian species the thick warty skin is disposed in folds which give the appearance of a coat of armour, and there is one horn. The white rhinoceros, 6 ft. high, is the largest, and, with the black species, is native to Africa. Smaller species are met with in Sumatra and Java.

Rhode Island State of the United States. The smallest in the union, it covers only 1548 sq. m., of which 180 sq. m. are water. It has a coastline on the Atlantic and includes several islands. Providence is the capital; other places are Pawtucket, Woonsocket, Newport and Warwick. It is governed by a legislature of two houses and sends two representatives and three senators to Congress. The chief industries are manufactures; there is only a little agriculture. Rhode Island was settled by people from Massachusetts and became a separate English

Colony in 1663. It is one of the 13 original states of the union. Pop. 687,500.

Rhodes Island of the Aegean Sea, 12 m. from the coast of Asia Minor and 600 sq. m. in area. Vines and fruit are grown and kaolin is mined. It was a great centre of Greek culture, equally famous for its artists and its rhetoricians, and its code of maritime law has influenced modern European law. It was part of the Roman and Byzantine empires. From 1309 to 1523 it was the headquarters of the Knights Hospitaliers; from 1523 to 1918 it was a Turkish possession, and after the Great War it was assigned to Italy.

The capital and chief seaport is also called Rhodes. On the N.W. coast of the island, its hospital, now a museum, was built by Knights Hospitaliers when they ruled here. In the street of the knights some of their houses still stand. Pop. 12,000.

Rhodes Cecil John. English statesman. Born July 5, 1853, at Bishops Stortford, Herts, he was sent to S. Africa for his health. He amassed a fortune at Kimberley, returned to England fired with the ideal of extending British possessions in Africa, and entered Oriel College, Oxford. Returning to S. Africa, he entered politics in 1881. In 1884 he was deputy commissioner in Bechuanaland, which he made a British protectorate in 1885, and in 1889 he formed the British South Africa Company to penetrate northwards. He was Prime Minister of Cape Colony from 1890 to 1896, his ministry ending owing to his connection with the Jameson Raid (q.v.). He now turned his attention to the development of Rhodesia, to which he devoted the rest of his life. He died March 26, 1902. In his will he bequeathed some six million pounds for the founding of Rhodes Scholarships at Oxford. Thirty-four scholars come each year from the British Empire, thirty-two from the United States, and two from Germany. Imperial and American students hold their scholarships for three years, the Germans for two.

Rhodesia British S. African territory northward to Tanganyika Territory and the Belgian Congo. Bounded on the east by Portuguese East Africa, Nyasaland and Tanganyika Territory, and on the west by Belgian Congo, Portuguese West Africa and Bechuanaland, it is divided into two regions, Northern Rhodesia, a British territory, and Southern Rhodesia, a self-governing British colony.

Historically, both areas must be treated as one, the modern history of Rhodesia beginning in 1888 when the British, through Cecil Rhodes, made a treaty with the Matabele king, Lobengula, giving the right to seek and work minerals in the country. The British S. Africa Company, formed by Rhodes, then began the penetration of the country, and settlement proceeded, interrupted by the Matabele War, the Jameson Raid and the S. African War. Rhodesia did not enter the Union in 1910, and in 1914 the Company's charter was renewed for ten years, Southern Rhodesia being annexed as a crown colony in 1923, while Northern Rhodesia was separately administered from 1911, being taken over by the British Government in 1924.

Northern Rhodesia is a high plateau, the watershed of the Congo and the Zambezi, and is mainly agricultural, maize, tobacco, cotton and fibre being grown; some cattle ranching is carried on. It is administered by a governor, with an executive council and a legislative council of 14 members. Copper, zinc, lead and

gold have been discovered, copper in large quantities. Livingstone, near the Victoria Falls, is the administrative centre. Area, 287,950 sq. m. Pop. (1931) white, 13,847; native, 1,331,229.

Southern Rhodesia is part of the great South African plateau, lying in part between the basins of the Zambezi and the Limpopo. Silver, copper, coal, diamonds and other minerals are produced; cattle are raised, and maize, cotton and citrus fruits are exported. Administration is by a governor, with a legislative council and a legislative assembly of 30 members. Salisbury is the capital, but Bulawayo is larger. Area, 150,344 sq. m. Pop. (1931) 1,108,949, of whom 49,904 are whites.

Rhododendron Genus of ornamental flowering shrubs and trees of the order *Ericaceae*. First introduced into England in the 17th century, they are now commonly grown. They will thrive in ordinary soil that does not contain lime or chalk. A little peat is an advantage, and protection from cold winds is desirable.

Rhondda Urban district of Glamorganshire, 16 m. from Cardiff, on the G.W. Rly. It consists of a number of mining centres in the valleys of the rivers Rhondda Fawr and Rhondda Fach, united in 1897 into an urban district, one of the largest in the country. Among the villages included are Tylorstown, Ferndale, Treherbert, Tonypandy and Pentre. The staple industry is coal mining. Pop. (1931) 141,344.

Rhondda David Alfred Thomas, first Viscount. British coal-owner and statesman. Born in Aberdare, March 26, 1856, the son of a coal merchant, on leaving Cambridge he entered his father's business. He represented Merthyr Tydvil, and later Cardiff in Parliament, and was president of the Local Government Board, 1916-17. He rendered great services to the country during the war, first at the Ministry of Munitions and later as Food Controller (1917); as such he introduced rationing, controlled prices, and prevented speculation. He died July 3, 1918.

Rhône River of Switzerland and France. It rises on the W. slopes of Mt. St. Gothard in Switzerland in the famous Rhône glacier at a height of 6000 ft. During the greater part of its upper course it is little more than a mountain stream. After flowing through the whole length of Lake Geneva, it follows a winding course to Lyons, where it becomes navigable. Thence it flows in a southerly direction into the Gulf of Lyons. Its length is 500 m. and the area of its basin 38,170 sq. m.

Rhubarb Herbaceous plant of the genus *Rheum* and order *Polygonaceae*. A native of Siberia, it is widely cultivated in other countries for its edible stalks, which are stewed or made into tarts, and used also as preservatives. Medicinal preparations are made from root and stalks. The leaves are poisonous.

Rhuddlan Town of Flintshire, 8 m. from Denbigh on the River Clwyd, by the L.M.S. Rly. There is a ruined castle. Before the sea retreated Rhuddlan was a prosperous port.

Rhyl Watering place and urban district of Flintshire, on the coast, 30 m. from Chester by the L.M.S. Rly. Here the River Clwyd falls into the sea. The sands are good, and the attractions include a marine lake and winter gardens. Pop. (1931) 13,489.

planning of melody into sentences, phrases and smaller sub-divisions. It is the third essential element of music.

Rib In anatomy the name given to one of the series of twelve pairs of arched bones forming the wall of the thorax. The ribs articulate with the backbone behind, but in front the first seven join the breast bone, and of the remaining five three have the extremities united and two remain free.

The term rib also refers to the timbers strengthening the sides of a ship, and in architecture to a narrow moulding on a wood ceiling.

Ribble River of England. It rises on Wharfedale in Yorkshire and flows into Lancashire to the Irish Sea beyond Preston, a length of 75 m., ending in a large estuary. The sea is receding in the estuary. The picturesque district through which the river flows is called Ribblesdale.

The title of Baron Ribblesdale was borne by the family of Lister from 1797 to 1925. Thomas Lister, M.P., a Lancashire manufacturer, was the first holder. Thomas Lister, the 4th baron, was a prominent social figure. He died Oct. 21, 1925, and his only son, Charles, having been killed in the Great War, his title then became extinct. The family seat was Glasburne Park, near Clitheroe.

Ribbon Fish Deep sea fish (*Regalecus*) native to the North Sea, Atlantic and Mediterranean. It has a thin, narrow, elongated body along the length of which is borne the dorsal fin. At the head the fin has lengthened rays which form a kind of crest, and the ventral fins are long and thin, with an expansion at the tips. It reaches a length of 18 ft., and is also known as the oar fish.

Ribbon Grass (*Phalaris arundinacea variegata*). Cultivated variety of tall grass with broad, striped leaves of green and white. The wild weed grass of the same genus grows in damp and marshy places, but ribbon grass grows easily in any soil. It is also known as gardeners' garters.

Ribchester Village of Lancashire, on the Ribble, 5 m. from Blackburn. Here the Romans had an important station called *Brenntonacum*. Excavations have revealed many Roman remains for which a museum has been opened.

Rice Dressed grain of the annual grass, *Oryza sativa*. Grown in vast quantities in the east as the principal food, it is also cultivated in the U.S.A., Africa, S. Europe and elsewhere. Though grown chiefly in wet land, the young plants being set out actually under water which subsequently dries, some varieties require drier conditions. For Europe, rice is specially dressed, somewhat reducing its value as food. Rice possesses less fat and protein than other cereals, but the small starch grains are easily digested.

Rice Paper Smooth white paper made from the pith of *Fatsia papyrifera*, a small tree of the ivy family growing in Formosa. The pith is removed and cut into thin sheets which are pressed firmly together. Rice paper is used in China and Japan for painting on, and also for making artificial flowers.

Richard I. King of England. The third son of Henry II., he was born Sept. 8, 1157, and made Duke of Aquitaine

in 1170. He passed his time in fighting against his father and with his brothers until 1189, when he succeeded Henry as king. He reigned for ten years, but passed only a few months in England. He took a leading part in the Crusades and won a great reputation as a warrior. In 1192 he was taken prisoner in Germany and remained a captive until 1194, when a large sum was paid for his release. He was killed in battle at Chalus, April 6, 1199. He married Berengaria, daughter of the King of Navarre, but left no legitimate children. His successor was his brother John.

Richard II. King of England. Son of the Black Prince, he was born April 13, 1368; succeeding his grandfather, Edward III., in 1377. With the exception of eight years, 1389 to 1397, his reign was full of trouble. Taxation was heavy, and risings took place in many parts of the country, the most serious being that of Wat Tyler (1381). The preaching of the Lollards (q.v.) helped to increase the discontent. Henry of Lancaster forced Richard to abdicate in Sept., 1399, and Parliament condemned him to perpetual imprisonment. He was almost certainly murdered, not long after his abdication.

Richard III. King of England. He was born Oct. 2, 1452. Throughout the reign of his brother, Edward IV., he gave him loyal assistance, and was duly rewarded with many high offices, but on his death he usurped the crown from his nephew, Edward V., whom, together with Edward's younger brother, the Duke of York, he is believed to have had murdered in the Tower. He met his death Aug. 22, 1485, fighting against Henry of Richmond at Bosworth. The chronicles of this reign are wholly Lancastrian in origin and the traditional character of Richard is not borne out by modern historical research.

Richardson Samuel. English novelist. Born in Derbyshire in 1819, he became a successful London printer. At the age of 50, he was persuaded to write *Pamela* (1740), a description in the form of letters of the trials of a virtuous country girl. This was followed by *Clarissa* (1748), and *Sir Charles Grandison* (1753). He may be regarded as one of the originators of the modern novel. His writings reveal a special understanding of women. He died July 4, 1761.

Richardson Thomas. English cricketer. Born at Byfleet in Aug., 1870, he played for Surrey in 1892 and for the next few years was the chief bowler in the team. He also played for England against Australia in his own country in 1893 and 1896, and also in Australia. He died July 3, 1912. Many judges consider Richardson the finest fast bowler who has ever lived.

Richborough Seaport of Kent, on the estuary of the Stour, just outside Ramsgate. There are some ruins of a fortress built by the Romans, who had an important station here. In 1916 a port was established here for sending men and material to France. A harbour was made in the estuary and a train ferry begun. After the war the works were sold in order to make the port suitable for shipping coal.

Richelieu River of Canada. It rises in Lake Champlain and falls into the St. Lawrence at Borel. It is 80 m. long, and forms part of the water route from the Hudson to the Great Lakes.

Richelieu Armand Jean du Rossis, duc de. French cardinal and

minister of Louis XIII. He was born in Paris, Sept. 5, 1585. Consecrated Bishop of Lucon in 1607, he was made cardinal in 1622, and chief minister in 1624. His policy had three great aims: the suppression of the political power of the Huguenots, the vindication of the royal authority, and the security of France against the threatened domination of the Habsburgs. He was successful in his aims, largely owing to the consistent support of the king. He died Dec. 4, 1642.

Richmond Borough of Surrey, on the Thames, 9 m. from London, by the S. and District Rlys. It includes Kew and Petersham, and is famous for its beauty spots, especially the hill overlooking the Thames near where the Star and Garter Hotel once stood, and where are now the terrace gardens. A bridge crosses the Thames here. There is a meteorological observatory. Pop. (1931) 37,791.

Richmond Park, where there was once a royal residence, is still Crown property. It covers 2250 acres and stretches from Sheen to Kingston and in the other direction as far as Wimbledon. It contains deer and some fine old trees and in it are White Lodge, Sheen Lodge and other residences.

Richmond Borough and market town of Yorkshire (N.R.), on the Swale, 50 m. from York, on the L.N.E. Rly. The church of Holy Trinity in the market place and the tower of a monastery are of interest. On the hill are the keep and other remains of a large and magnificent castle, while below an old bridge crosses the river. The town has an agricultural trade and races are held here. Richmond was, in the Middle Ages, the chief town of an honour, i.e. a great feudal estate. Pop. (1931) 4769.

Richmond City and seaport of Virginia, capital of the state. It stands at the mouth of the James river, 115 m. from Washington. Its fine buildings include the State Capitol, a replica of the Maison Carrée at Nîmes, and the Valentine Museum. The house in which the President of the Confederate States lived during the Civil War is now a museum and there are monuments to Washington and Lee. The industries include shipping, especially of tobacco, and manufactures of machinery, motor vehicles and fancy goods. Pop. (1930) 182,929.

Richmond Sir William Blake. English painter and decorator. Born in London, Nov. 29, 1843, his first Academy picture, in 1861, showed the influence of Italy, where he studied for some years. On his return in 1869 he exhibited "A Procession in Honour of Bacchus" at the Academy. He became Slade Professor at Oxford, and was elected A.R.A. (1888) and R.A. (1895). In 1896 he became Professor of Painting to the Royal Academy. He did decorative work in St. Paul's Cathedral. He died Feb. 11, 1921.

Richmond and Gordon, Duke of. British title. An earldom of Richmond appears in the 11th century, when William I. conferred the title on Alan Rufus, son of the Count of Brittany. Henry VIII. created his natural son Henry Fitzroy, Duke of Richmond. Charles II.'s natural son, Charles Lennox, created by him Duke of Richmond, was the ancestor of the present Duke of Richmond and Gordon. The third duke (1734-1806) was noted for his advocacy of manhood suffrage, annual parliaments, and other electoral changes. The fifth (1791-1860), on inheriting

the estates of his maternal uncle, the last Duke of Gordon, assumed the name of Gordon. The present holder of the title, Charles Henry Gordon-Lennox, the eighth Duke was born 30th Dec., 1870.

Richthofen Baron Freiherr von. German military airman. During the Great War he was the leader of the famous "Circus" on the western front, and probably responsible for the defeat of more British and French airmen than any other enemy aviator. The German higher command claimed for him 80 victories in single combat. He was brought down and killed on the Somme on April 23, 1918.

Rickets (or Rachitis). Disease of defective nutrition. It is a so-called deficiency disease, due to absence or insufficiency of the antirachitic vitamin D in the food. It shows itself in the early months of infancy, by soreness of body, restlessness, poor appetite and bad digestion. Later there are changes in the bones, the leg bones becoming bowed, the chest flattened, and the back humped.

Treatment.—Improve the general hygiene and do not allow the child to stand or walk. Give a diet rich in vitamins and fats (fresh milk, cream, orange juice, raw turnip juice, cod-liver oil). Ultra-violet light treatment and exposure to air and sunlight will greatly improve the condition. Natural feeding from birth prevents the occurrence of rickets.

Ricketts Charles. English painter. He was born in Geneva, Oct. 2, 1868, and educated in France. He founded the Vale Press, and was publisher of the Vale books. His pictures are found in the National Gallery and in the Luxembourg, Paris. He gained fame as a stage decorator, providing designs for *King Lear*, *St. Joan*, *King Henry VIII.*, *Macbeth*, *The Mikado*, *The Gondoliers*. He was elected R.A. in 1928 and died Oct. 7, 1931.

Rickmansworth Urban district of Hertfordshire 18 m. from London, where the rivers Chess and Colne unite. It is on the L.M.S. and Metropolitan Rlys. Brewing and printing are industries. The Grand Union Canal passes by the town. Pop. (1931) 40,810.

Rickshaw Shortened form of *rīkshā*, an Indian vehicle. It is a small carriage on two wheels covered with a hood, and is drawn by one or two men.

Rideau River of Canada. A tributary of the Ottawa, it rises in Lake Rideau about 40 m. from the city of Ottawa. There is also a canal called the Rideau, which goes from Ottawa to Kingston on Lake Ontario and is 125 m. long. Rideau Hall, at Ottawa, is the residence of the Governor-General.

Riding Word meaning a third, used for the divisions of the county of York, which is divided into three ridings, West, East and North. The three meet at York. The Irish county of Cork is also divided into three ridings. See YORKSHIRE.

Ridley Nicholas. English bishop and martyr. Born about 1500, he was a devoted leader of the reformed faith and one of the compilers of the English Prayer Book (1548). In 1550 he succeeded Bonner as Bishop of London, when the latter was deprived of his see. On the death of Edward VI., he supported Lady Jane Grey in opposition to Mary, and when Mary became queen, he was arrested and tried for heresy. He was burned at the stake in Oxford, Oct. 8, 1555.

Rienzi Cola di. Roman tribune. Born c. 1313, his aim was to restore the former glory of Rome by putting an end to the disorders which prevailed in and around the city. In 1347 he led a successful rising against the nobles, and took the title of Tribune with dictatorial power. Encouraged by this triumph, he essayed to unite all Italy in a great republic, with Rome as capital, but he soon began to show the most incredible vanity, which caused the people to withdraw their support. He was killed in a popular rising, Oct. 8, 1354.

Rievaulx Village of Yorkshire (N.R.), 3 m. from Helmsby, on the L.N.E. Ry. Ruins of a Cistercian abbey, very extensive and beautifully situated, now belong to the nation and a certain amount of restoration work has been done. The word means "the valley of the Rye," this being a small river that flows past the ruins.

Rif District of Spanish Morocco. It is a mountainous region near the coast, chiefly known because its inhabitants, of Berber stock, are constantly at war with Spain.

Rifle Firearm of the musket class characterized by having its barrel spirally grooved to give greater accuracy in firing owing to the rotary motion given to the bullet. Progressive improvements have been made since the early 19th century by the adoption of a breech-loading mechanism, the use of smokeless powder, and the magazine. There are many types of rifles, both military and sporting, the former ranging from .256 to .315 inch bore and the latter .350 to .500 inch.

In 1859 the National Rifle Association was formed for the promotion of rifle shooting and holds its meetings at Blayey.

In 1800, a regiment known as the Rifle Brigade was raised and served with distinction in various wars up to the Great War, when its death roll was 11,245. Another distinguished regiment, the King's Royal Rifle Corps, was formerly the 60th Foot, dating from 1755. Both regiments have their depots at Winchester.

Riga Seaport and capital of Latvia. It stands on the river Dvina, 7 m. from its mouth in the Gulf of Riga. It exports flax and wood, and as a rail outlet for the interior of Russia is now (1932) beginning to recover from the set-back it received through the economic collapse of that country. It has a broadcasting station (535 M., 15 K.W.). Riga was founded in 1158, and was for a time a member of the Hanseatic League. It fell to Poland in 1561, was taken by Sweden in 1621, and finally by Russia in 1710. Occupied by the Germans from 1917-19, it became capital of Latvia on the creation of the republic. S. Peter's church and the castle both date from the 15th century. Pop. 338,000.

Rigging Term used in the narrower sense for the cordage or tackle of a sailing ship, but more usually in the wider meaning which includes also the masts, yards, sails, etc. Sailing ships fall into two groups, the fore-and-aft rigged as in a schooner, and the square-rigged as in a full-rigged vessel. In steamships rigging is reduced to the masts and tackle used in lifting cargo or as wireless aerials.

Right In politics any party holding moderate views, the opposite of the Left. Its use in this sense is due to the fact that in 1789 when the National Assembly met at Versailles the moderate members sat, at first by accident, on the right side of the room.

Right of Way Phrase meaning the right of the public to pass over land in private ownership. It is a question of custom. If a way over land has existed without interruption for 20 years, it is for ever a right of way. Many landlords close the footpaths on their estates for one day in seven years, or some other period, in order to prevent a right of way being established. This is done in the district of London that belongs to the Inner and Middle Temples. In 1931 an act of parliament was passed, assuring right of way to the public.

Rigi Swiss mountain. It rises, an isolated mass, between the lakes of Lucerne and Zug. Two mountain railways from Vitznau on the E. and Arth on the E. run to its summit, Rigi Kulm which is 5906 ft. high and commands one of the world's most famous views of glorious Alpine scenery.

Rigidity Term in physics applied to that property of matter of resistance to change of form, that distinguishes solids from fluids. In the ideal state of rigidity the component particles of a body retain their relative position to one another although the whole body may move, but such a condition does not exist in nature as all substances undergo some degree of deformation.

Rig Veda Hindu sacred literature. The Rig Veda is the most important and the oldest of the four extant collections of Hindu Scriptures. It consists of 1028 praises or hymns in the Sanskrit language arranged in 10 books. The date at which the collection was made is believed to be about 1000 B.C. It is an important source for the study of Hinduism.

Rimmon Assyrian thunder god. The name is mentioned in 2 Kings xviii., in a passage where Naaman after he has been healed by Elisha, seeks pardon from the prophet if in the course of his official duties as a "captain of the host of the King of Syria" he worships in the Temple of Rimmon at Damascus.

Rimsky-Korsakov Nicholas Andreevich. Russian composer. He was born at Nijni-Novgorod on March 18, 1844. After service in the navy, he became (1873) a professor at the St. Petersburg conservatoire and conductor of the Russian symphony concerts. From 1878-1907 he composed a succession of operas, characterised by light and colour, and dealing with Russian subjects. He died June 2, 1908.

Rinderpest Cattle plague. In the form of an eruptive and contagious fever, it is the most serious disease to which cattle are liable, proving fatal after 6 to 10 days. A serious outbreak in 1865 is estimated to have caused the death of 250,000 cattle in Britain. The plague of 1877 was less deadly and there has been no recurrence of the disease in Britain since.

Ringbone Disease of the horse. It shows itself in an osseous growth on the pastern bones and may be due either to injury or to rheumatic tendencies. In the latter case it is hereditary. Complete rest is an essential part of the treatment, and a cold water compress may be found useful in giving relief.

Ring Dove (*Columba palumbus*). Largest species of the common wood pigeon. It derives its name from the light feathers that give the effect of a ring on its neck. Common in the British

Isles and Europe, it frequents open spaces in cities, as well as the countryside, assembling together in flocks. A voracious feeder, it causes much damage to crops in its quest for food.

Ring Ousel Species of mountain song bird (*Turdus torquatus*) of the family of thrushes. Common in Scandinavia and other parts of Europe, it is a summer visitor to the British Isles from April to October. It breeds in the mountainous districts of the N., in the Peak district and the wilder parts of Devon and Cornwall. Somewhat larger than the common blackbird, the plumage is black with greyish margins and a crescent of white on the breast. It nests usually in heather or grass, sometimes on a low ledge of rock. It feeds on snails, slugs and insects.

Ringwood Market town of Hampshire, on the Avon, on the edge of the New Forest, 103 m. from London, by the S. Ry. Brewing and glass making are industries. Pop. 4600.

Ringworm Contagious skin disease caused by species of fungi. Most common among children of school age it usually appears in the form of a small irritating round patch among the hair on the scalp. As it is highly contagious, medical treatment should at once be obtained and precautions taken to prevent spreading the infection. Ringworm of the beard, *tinea barbi*, is a form very difficult and tedious to treat. Cats, dogs and other animals are subject to ringworm, which can be communicated by them to human beings. Its medical name is *tinea*.

Rio de Janeiro Seaport and capital of Brazil. It stands on the W. side of the Bay of Rio de Janeiro, backed by mountains. At the entrance to the bay is the famous Sugar Loaf rock, and the harbour is one of the finest natural harbours in the world. The city has some fine streets, numerous parks and gardens, a great thoroughfare, the Avenida Rio Branco, and a marine boulevard, constructed on reclaimed land. The buildings, apart from the government buildings and the National Library, are not very notable. The city has extensive manufactures, including textiles, clothing, furniture, cigars and cigarettes, chocolate, etc., and its exports include coffee, sugar, fine woods, gold, diamonds, etc. It is the centre of a federal district administered by a prefect representing the government and a council representing the people. Pop. (1928) 1,431,688.

Rio de Oro Spanish possession, on the N.W. coast of Africa, S. of Morocco. In soil and climate it belongs to the Sahara Desert. The population consists for the most part of nomad Arabs and Berbers, and the area is about 70,000 sq. m. It is under the control of the Captain-General of the Canary Islands.

Rio Grande River of N. America. It rises in the Rocky Mountains near Colorado, flows across New Mexico, forms the boundary line between the United States and Mexico, and falls into the Gulf of Mexico. It is 1800 m. long.

Riot Word meaning any disorder caused by a number of people, not fewer than three according to English law. They must be gathered for an unlawful purpose, or one calculated to terrorise ordinary citizens.

By the common law of England any citizen may be called upon to help to suppress a riot. By the Riot Act of 1714, if 12 or more persons,

having gathered together, refuse to go away after a magistrate has read a proclamation ordering them to do so, they can be dispersed by soldiers. A law passed in 1886 makes the police responsible for damages done in a riot, thus the cost of such damage falls upon the county or borough concerned.

Rio Tinto Town of Spain. In the S.W. of the country, it is not far from Seville, and stands near the source of the river Tinto. The town is celebrated for its copper mines, among the oldest and richest in the world. They were worked by the Romans and are now managed by an English company.

Ripley Market town and urban district of Derbyshire, about 13 m. N.W. of Nottingham and 134 from London by the L.M.S. Rly. Here are collieries and textile mills. Pop. (1931) 13,415.

Ripley Village of Surrey, 5 m. from Woking and a stopping place on the road to Portsmouth.

Ripley Village of Yorkshire (W.R.), on the Nidd, 3 m. from Harrogate, on the L.N.E. Rly. Ripley Castle dates from the 16th century, but has been modernised.

Ripon City and market town of Yorkshire (W.R.), on the Ure, 24 m. from Leeds and 214 from London, by the L.N.E. Rly. The cathedral, restored in the 19th century, is notable for its west front, crypt and chapter house. Ripon became the seat of a bishopric in 1836. Its chief official was called the wakeman, and the wakeman's house still stands. It was famed for its cloth in the Middle Ages. To-day it is an agricultural centre and has baths and a pump room for its waters which have healing properties. Races are held here. Pop. (1931) 8,576.

Ripon Marquis of, English statesman. George Frederick Samuel Robinson, a son of the Earl of Ripon, was born Oct. 24, 1827. In 1880 he was appointed viceroy of India, the first Roman Catholic to hold the post. He held various ministerial posts as a Liberal, including Secretary for War (1863), for India (1866), Lord President of the Council (1868), First Lord of the Admiralty (1886), Colonial Secretary (1892), and Lord Privy Seal (1905-1908). He was also a prominent freemason until his conversion to Catholicism in 1874. Created Marquess of Ripon in 1871, he died July 9, 1909.

Risaldar Title of native officer in the Indian army. He commands a troop of cavalry.

Risca Urban district of Monmouthshire, 6 m. E. of Newport, 147 m. from London by the G.W. Rly., and situated on the Ebbw. A colliery centre, it has manufactures of tinplate and chemicals. Pop. (1931) 16,605.

Rishton Urban district of Lancashire, 3 m. N.E. of Blackburn and 211 from London by the L.M.S. Rly. In a colliery district, it has cotton and paper mills. Pop. (1931) 6,631.

Ritchie Baron. English politician. Born in Dundee, Nov. 19, 1828, and educated at the City of London School, Charles Thomson Ritchie had a long political career, beginning in 1874 as Conservative member for Tower Hamlets. He held many ministerial appointments—at the Admiralty, the Local Government Board, the Board of Trade, the Home Office—and was responsible for the creation of the County Councils, and legislation

dealing with many social problems. He was raised to the peerage in 1905, and died Jan. 9, 1906.

Ritual Prescribed order in the performance of religious worship. Strictly speaking, ritual should be distinguished from ceremony, the former being the order, the latter the acts of worship, but the distinction is not generally maintained.

Ritual figures to a greater or less degree in all religious observances. In primitive religions it often reaches a high degree of complexity. In ancient religions it was of the utmost importance, since the smallest mistake in word or action would result in failure to obtain the favour desired of the god. Ritual observance was important in the Jewish religion, being stressed especially by the Pharisees. The ritual of primitive Christianity was simple, but it became more complex as the theology and the organisation of the Church was developed.

There is a ritual for every service of the Christian Church, e.g., the ritual of the Mass, the ritual of the baptismal service. The ritual of the Catholic Church is more elaborate than that of the Protestant churches, within which there are also degrees of ritual observance.

River Stream of water flowing in a natural channel to the sea, a lake or other river. The water percolates slowly through the soil and may be supplemented in wet weather by the actual run off from the land, sometimes causing floods. The river bed tends to become wider by erosion of the banks leading to alterations in the course, and deeper, by scouring of the channel. River water carries much material in suspension which accentuates erosion. The material is deposited when the current ceases, as in floods whereby the fertility of the land is increased, or when the river enters a lake or the sea, resulting in the well known delta formation.

Rivera *Primo* Spanish dictator. He was born on Jan. 8, 1870. Entering the army from the Madrid Military Academy, he saw active service in Morocco and the Philippines, and attained the rank of lieutenant-general. He organised the military revolution of 1923 and was appointed by the king president of the military dictatorship. On the dissolution of the dictatorship in 1930 he became premier. He died in Paris on March 16, 1930, two months after the king had compelled him to resign.

River Hog Ungulate mammal (*Potamochoerus*) native to W. Africa, where it ranges in herds among swampy forest regions. Its natural food is roots and herbage, but the herds raid plantations and cause great damage to crops. The bristles are red.

Riverina District of Australia. It is situated in New South Wales, between the Murray and Darling rivers. Owing to its fine grazing-grounds, it is famous as a sheep-rearing area.

River Plate Estuary of S. America, formed by the two rivers Parana and Uruguay. The Plate attracts much shipping, which engages in the export of grain and animal products from the ports on its shores, the chief of which is Buenos Aires.

Riveting Process by which rivets are driven into metal plates, performed by hand, machines or hydraulic appliances. The iron rivets are heated first in a portable furnace or rivet hearth and after

being forced into the holes in the plates are finished off by forming conical heads by hammering, or rounded heads by use of a hollow punch or hydraulic tools, or counter-sunk heads where the surface must be free from projections.

Riviera Name given to a strip of land in France and Italy on the Ligurian Sea, a branch of the Mediterranean. It extends for about 140 m. and is noted for its wonderful climate, its beautiful scenery and its rich vegetation. In the French Riviera are such popular places as Cannes, Nice, Monte Carlo, Mentone and Antibes. In the Italian are Rapallo, Bordighera and other places.

Rivière du Loup River of Quebec. It rises in the N. of the province, and falls into Lake St. Peter, near Fraserville, the lake being really part of the St. Lawrence. Fraserville is sometimes called Rivière du Loup.

Rizzio David. Secretary to Mary, Queen of Scots. Born in Italy, about 1533, he first entered Mary's service as a musician, afterwards becoming her valet and in 1564 her private secretary. After his marriage to the queen, Lord Darnley became suspicious of Rizzio's dealings with his wife. On March 9, 1566, helped by other nobles, he dragged the Italian from her presence at Holyrood Castle and stabbed him to death.

Roach Freshwater fish. Of a deep and silvery colour and from 10 to 15 in. long, it is common in N. Europe and of gregarious habits.

Road Highway for traffic. The great road makers were the Romans, who made roads of extraordinary durability, some of which may be seen to-day. They were driven in straight lines across the country and consisted of several layers of different kinds of earth.

For a long time after the fall of the Roman Empire most of the roads were in a very bad condition, being mere tracks for horses, but a new era began in the 18th century. Good roads on the Roman model were made in France, England, Italy and elsewhere, and these made possible the period of travel by coach which lasted until the building of railway lines. The great English road builder of this time was J. L. Macadam (q.v.). In the 19th century the existing roads were maintained in a fair state of repair by the highway authorities, but no great attention was paid to them until the advent of the motor car.

In the 20th century many new roads have been constructed and some improvements introduced are important, one being the use of surface materials which do not raise dust. The main roads are of hard stone with a covering of granite chippings; tar products and slag thoroughly rolled in concrete are also used, and in the United States there are many miles of concrete road. In city streets asphalt or wood blocks are laid on a foundation of concrete. Rubber has also been tried, but without success, as a road surface. In Great Britain there are 177,000 m. of road. Of these 26,400 have been classed as class I. and 15,900 as class II. The rest are inferior roads. They cost nearly £80,000,000 a year in improvement and maintenance. In the United States there are over 3,000,000 m. of road.

In 1929 an important measure affecting the roads of Great Britain became law. It made the county councils the highway authorities, and they receive grants for making and im-

proving roads from the road fund. This fund is obtained from the taxation of motor vehicles and amounts to something like £30,000,000 a year. There is a Road Improvement Association at 180 Clapham Road, London, S.W. 9.

Road Board Former department of the British Government. It was established in 1909 and consisted of five members. Its duties were to provide new roads and improve the existing ones. In 1919 its duties were taken over by the Ministry of Transport which has a road department. See TRANSPORT, MINISTRY OF.

Roaring Disease of horses. It shows itself in a whistling sound in breathing and is due to faults in the respiratory organs. It is often found in thoroughbreds. There is no complete cure, but it can be reduced by careful feeding.

Roaring Forties Area of the southern oceans lying between 40° and 50° S. The name was given by sailors in the days of sailing ships because in this part of the world strong westerly gales usually prevail.

Robert Name of three kings of Scotland. The first is more generally known as Robert Bruce (q.v.). Robert II. was a son of Walter the Steward and a grandson of Robert Bruce. He was born March 2, 1316, and for some time was regent for his nephew, David II. In 1371 he became king in succession to David and reigned until his death, May 13, 1390. He is important as being the first of the Stuart kings. Robert III. was a son of Robert II. Born about 1340 he reigned from 1390 until his death on April 4, 1406. His successor was his son, James I.

Robert Name of two dukes of Normandy. Robert I., called the Devil, succeeded his brother, Richard, as duke in 1028. He died in 1035 and was succeeded by his son, William the Conqueror.

Robert II., the eldest son of William, was born about 1055. In 1087 he succeeded him as Duke of Normandy, but not as King of England. In 1098 he obtained money by handing over Normandy to his brother, William II., and went to Palestine on crusade. On his return he quarrelled with Henry and a battle was fought between them at Tenchebrai. Robert was taken prisoner and was still a captive when he died at Cardiff, in Feb., 1136.

Roberts Earl. English soldier. Born at Cawnpore, Sept. 30, 1832, Frederick Sleigh Roberts entered the Indian army in 1851, and served throughout the Mutiny, winning the V.C. in 1858. He then saw service in Abyssinia and Afghanistan and was made a K.C.B. in 1879.

In 1880, Roberts, now a general, made his famous march through Afghanistan to the relief of Kandahar. 1881 saw him appointed Commander-in-Chief in Madras and made a baronet. From 1885 to 1893 he was Commander-in-Chief in India and became Lord Roberts of Kandahar and Waterford in 1892. He was then promoted Field Marshal.

He was sent to South Africa to retrieve the situation after the early defeat of the Boer War. In 1901 he was created Earl, and became Commander-in-Chief of the British Army. He retired in 1904, but during the Great War visited the troops in France, and died November 14, 1914.

Robertson Frederick William. English preacher. Born in London, Feb. 3, 1816, the son of an officer in the army,

he was educated in Edinburgh and abroad, and articled to a solicitor at Bury St. Edmunds, but later he graduated at Oxford and was ordained in the Church of England in 1840. He was a curate at Winchester and Cheltenham before 1847, when he was made incumbent of Trinity Chapel, Brighton. During his six years here, Robertson won his place as one of the greatest preachers of the 19th century. His *Life and Letters* was edited by S. A. Brooke. He died Aug. 15, 1853.

Robertson Sir William Robert. British soldier. Born at Welbourn, Lincolnshire, Sept. 14, 1860, he enlisted as a private in 1877, and served in the ranks until 1888, when he won a commission in the Dragoon Guards. He was the first officer risen from the ranks to pass through the Staff College, 1897-8. He accompanied Lord Roberts in South Africa, and was at the War Office from 1901-07. From 1910-13 he was at the Staff College and the War Office.

In 1914, Robertson was at first quartermaster-general to the Expeditionary Force, and in 1915, chief of the general staff to Sir John French. He was recalled to the War Office, and made immediate improvements in the office, and in the disposal of forces in the different theatres of war. After the war he received a baronetcy, succeeded French as Commander-in-Chief of Great Britain, and commanded the British troops on the Rhine. He was made field-marshal in 1920.

Robertson Thomas William. English actor and dramatist. Born at Newark-on-Trent, Jan. 9, 1829, he came to London in 1848, where, after a long and varied experience of every department of stagecraft, he produced his first successful play, *David Garrick*, in 1864. His fame was definitely established by *Ours* (1866). Other successful plays followed, including *Caste* (1867), *School* (1869), *Home* (1869) and *Dreams* (1869). Nearly all his works were performed by the Bancrofts at the Prince of Wales's Theatre. He died Feb. 3, 1871.

Robeson Paul. Negro actor and vocalist. He was born on April 9, 1898, at Princetown, N.J., the son of a Presbyterian minister. Having graduated with honours at Rutgers College, and later, in law, at Columbia University, he started his career on the stage and concert platform as a singer of negro spirituals. He came to London in 1928 and played the title rôle in *Emperor Jones* and *Othello*.

Robespierre Maximilien François Isidore de. French lawyer, statesman and revolutionary leader. Born at Arras, May 6, 1758, he became a deputy to the States General of 1789, and rose rapidly to power. After defeating his rivals, Hébert and Danton, he established the Committee of Public Safety. As leader of this committee he was responsible for the Reign of Terror in Paris in 1793. Among the thousands guillotined were his former rivals, Hébert and Danton. With the support of the Paris commune he inaugurated the cult of the Supreme Being. He achieved dictatorial power, but was overthrown by a coalition of his opponents, and was himself guillotined when dying from a gun wound on July 28, 1794.

Robey George. British comedian. Born Sept. 20, 1869, he was educated at London and Dresden. He made his first appearance on a music-hall stage at the Oxford in June, 1891, and since then has played

in London, the provinces, and the colonies, in variety, revue, and pantomime. During the war he served with the Motor Transport, and organised performances for war charities, for which he was created a C.B.E. in 1919. He is also a clever artist and has exhibited at the Royal Academy.

Robin British bird. It is bold in approach, especially in winter. These characteristics, together with legendary associations, make it the most popular of British birds. It is very prolific, often nesting two or three times in the year, with five to seven eggs in each brood. The familiar red breast is not so brightly coloured on the females as the males.

The American robin is a member of the thrush family.

Robin Hood English legendary hero. He is represented in a series of old English ballads as a chivalrous outlaw living a care-free life with his companions, Little John and Friar Tuck, in the Sherwood Forest, helping the poor with his plunder from the rich. It is very doubtful if there is any historical basis for this legend, which certainly dates from the 14th century, for the "rymes of Robin Hood" are mentioned in *Piers Plowman* (1377).

Robin Hood's Bay Watering place of Yorkshire (N.R.), also the name of an opening in the North Sea. The town stands at the N. end of the bay, 6 m. from Whitby, on the L.N.E. Ry. The fishing village is on the coast and the modern town a little way inland.

Robinson Lennox. Irish dramatist. Born at Douglas, County Cork, Oct. 4, 1886, and educated at Bandon Grammar School, his first play was *The Clancy House*, produced at the Abbey Theatre, Dublin, in 1908. From 1910-14 he was manager of the Abbey Theatre, and in 1915 he was appointed organising librarian to the Carnegie Trust, which position he held until 1925. He again managed the Abbey Theatre from 1919-23, when he became its director. His best-known plays are *The Lost Leader* (1918) and *The Whiteheaded Boy* (1916), which have been played in England and America. He has written a novel, *The Young Men from the South*, and several volumes of short stories.

Robinson Mary. English actress known as Perdita. Born in Bristol, Nov. 27, 1758, she first appeared on the London stage in 1778 as Juliet. Her beauty attracted much attention and as Perdita in *The Winter's Tale* she made a great reputation. In 1779 she became mistress of the Prince of Wales and later she lived with Charles James Fox. She died in poverty on Dec. 26, 1800.

Robinson William Heath. English artist. He was born May 31, 1872. His humorous drawings are a prominent feature of many English periodicals. He has also done successful work as an illustrator of books.

Robot Mechanical man. The term was first used by Karel Capek in his play, *R.U.R.*, 1920, where it described a piece of mechanism, extraordinarily efficient, but wholly without heart or soul. Robots of varying degrees of efficiency have been invented and one or two have been displayed in London.

Rob Roy Scottish outlaw. Born in 1671, his real name was Robert Macgregor, but in 1693 he adopted Campbell as a surname. In 1718 he gathered together a band

of followers and carried out raids on the estate of the Duke of Montrose, who, he alleged, was unfairly pressing him for debt. After a long career as a free-booter, which included many amazing escapades, he was arrested and imprisoned, but afterwards pardoned. He died at Balquhider in Perthshire on Dec. 28, 1734.

Robsart Amy. English heroine. A daughter of Sir John Robsart, she was born about 1532. In 1550 she married Robert Budley, who later became Earl of Leicester. She was found dead at Cumnor Place, near Oxford, Sept. 8, 1560, and it is believed that she was killed by Budley, but there is no definite proof. Sir Walter Scott made her the heroine of his novel *Kenilworth*.

Roc Legendary bird. The roc appears in many Eastern tales, e.g., the *Arabian Nights*. It is represented as possessing gigantic size and strength, sufficient, in the story of *Sinbad the Sailor*, to lift an elephant.

Roch French saint. He was born at Montpeller about 1295 and won renown by looking after the sick while a plague was raging. He died in prison, Aug. 16, 1327. St. Roch was regarded as the patron saint of those suffering from the plague and many Italian and other artists have portrayed scenes from his life.

Rochdale Borough and market town of Lancashire, on the Roch, 11 m. from Manchester and 96 m. from London, by the L.M.S. Ry. It is a centre of the cotton and woollen industries, but has also engineering and asbestos works. Cattle markets are held here. Rochdale is famous as the starting place of the co-operative movement. Pop. (1931) 90,278.

Roche Sir Boyle, Irish politician. Born in 1743, he became a soldier. In 1777 he was elected to the Irish House of Commons and in 1782 he was made a baronet. Owing to his wit and humour, which included some of the most celebrated "bulls" on record, he won a great reputation. He remained in Parliament until 1800 and died June 5, 1807.

Rochefoucauld La. See LA ROCHE-FOUCAULD.

Rochelle La. French town, on the W. coast, opposite the Ile de Ré. It possesses the distinguished Hôtel de Ville, built in the Renaissance style. In 1891 the harbour at La Pallice, 3 m. away, was opened for the use of larger vessels. As a shipping centre, La Rochelle has important connections with the Newfoundland fishing industry. It was a Huguenot centre in the 16th and 17th centuries. Pop. 41,621.

Rochester Kent, on the Medway, 33 m. from London, by the S. Ry. It is famous for its cathedral and its castle. The cathedral, by a Norman front, has many other features of interest, including the crypt. The keep of the Norman castle overlooking the Medway is the most complete of its kind in England. Eastgate House is now a museum with a wing added in 1924. Restoration House is associated with Charles II. The city has several memories of Dickens, including the Bull Inn of the *Pickwick Papers* and Watts' Charity, where six poor men are fed and lodged every night, is described in *Edwin Drood*. The manufactures include cement and there is a trade along the river. Pop. (1931) 31,196.

Rochester City of New York state, U.S.A., on the river Gene-

see, 7 m. from its mouth, on the S. coast of Lake Ontario. It is a university town and also a manufacturing centre for clothing, boots, shoes, furniture, flour milling, etc. The most noteworthy structure is an aqueduct of seven arches by which the Erie Canal formerly crossed the river. Pop. 328,132.

Rochester Earl of. English title now extinct. The first earl was Henry Willmot, who fought for Charles I. in the Civil War and was made an earl in 1652. His son, John Willmot, the 2nd earl, was born April 10, 1647, and educated at Oxford. He is known as the author of satires and plays, and as one of the most prominent figures in a licentious age. Some of his plays cannot be published owing to their indecencies. He died July 26, 1680, and when his son, Charles Willmot, the 3rd earl, died on Nov. 12, 1681, the title became extinct. It was then granted to Lawrence Hyde, but it became extinct again on his son's death in 1758.

Rochet Ecclesiastical vestment worn by bishops. Resembling a surplice with long tight sleeves to the hands, it was originally worn by bishops and abbots for religious ceremonies. In the Anglican Church loose sleeves of lawn are now attached to the black chimere under which the garment is worn.

Rochford Market town of Essex, 3 m. from Southend, by the L.N.E. Ry. The hall, once the home of Anne Boleyn, is now a golf club. The town has an agricultural trade and some manufactures. Races are held here.

Rock Term in geology for the constituent masses of the earth's crust, consisting of aggregates of minerals either of one kind as in pure sandstone or of several as in granite. From their origin, rocks are classified as sedimentary, metamorphic, and igneous. Sedimentary rocks have been deposited by the action of water and may be mechanically formed as in sands and clays, organically formed as in limestones and coals, or chemically formed as in certain limestones, gypsum and rock salt. Metamorphic rocks have undergone alteration through pressure or heat as in slates and schists, while igneous rocks have solidified from a molten state and include granites, basalts, dolerites, etc.

Rockefeller John Davison. Oil magnate and philanthropist. Born at Richford, N.Y., July 8, 1839, he became, at the age of 50, the richest man in the world. By gradually absorbing smaller oil-producing companies, he ultimately controlled, through the Standard Oil Company, about 90 per cent. of the American refineries. He has distributed some \$600,000,000 of his wealth, most of it for the establishment of—

1. The Rockefeller Institute for Medical Research, "to conduct, assist and encourage investigations in medicine, surgery and allied subjects."
 2. The Rockefeller Foundation, "to promote the well-being of mankind throughout the world."
 3. The General Education Board.
 4. The Laura Spelman Rockefeller Memorial.
- His son, John D. Rockefeller, Jr., born Jan. 29, 1874, has collaborated with his father in all his interests. In 1932 he made a public declaration against the failure of prohibition in the U.S.A.

Rocket (*Hesperis*). Genus of plants of the order *Cruciferae*, including annual and perennial varieties. The single

flowered white or mauve rocket can be grown from seed sown in March or April. The double perennial variety is more successfully increased by cuttings. Another name is Dame's Violet.

Rocket Type of firework used in pyrotechnic displays and for signalling and life-saving. It consists of a cardboard cylinder closed at one end and fastened to a stick. The cylinder contains a gunpowder charge and fuse at the lower end, and a smaller charge with colours and stars in its head. When ignited at its base the rocket is propelled into the air where finally the head charge explodes, setting free the stars.

An engine in which a series of rockets are exploded in succession has been devised recently for propelling a car, boat or aeroplane and although some success has been obtained many initial difficulties have yet to be overcome.

The **Rocket** is the name of the first locomotive, invented by George Stephenson, which ran on the Manchester and Liverpool Railway in 1830. It can now be seen in the Science Museum at S. Kensington.

Rock Ferry Watering place of Cheshire, on the estuary of the Mersey, adjoining Birkenhead. It is connected by a ferry with Liverpool.

Rockhampton Town of Queensland, 35 m. up the Fitzroy river. It has excellent modern buildings, wide streets planted with trees. It is the port for the important pastoral and mining neighbourhood and is connected by rail with the Northern and Central Districts and with Brisbane. Pop. 30,000.

Rockingham Village of Northamptonshire, 8 m. from Kettering and famous for the ruins of its castle. **Rockingham Forest** once covered a large district near the village, but only a little of it remains.

Rockingham Marquess of. English title. In 1714 Thomas Watson, Baron Rockingham, was made an earl, but the title became extinct in 1746 when he died. His barony passed to Thomas Watson-Wentworth, a descendant of the great Earl of Strafford. He inherited the Northamptonshire estates of the Watsons and the Yorkshire estates of the Wentworths and in 1746 was made a marquess.

Charles Watson-Wentworth, his son, was born May 13, 1730, and succeeded to the title in 1750. He soon became prominent as a leader of the Whigs, and he was Prime Minister in 1765-66. In 1782 he was again Prime Minister, but three months later he died July 1, 1782. His titles then became extinct.

Rockingham Ware was made at Swinton, near Sheffield, in the 18th century. It is chocolate in colour and includes vases on which landscapes were painted.

Rocky Mountains American mountain range, or system of ranges. It is the watershed of the American continent, reaching from the Yukon river in Alaska to New Mexico in the S., a distance of 2200 m. In Colorado there are more than 40 peaks over 14,000 ft. high, the highest being Mt. Elbert. From this district northward the Rocky Mountains decrease in altitude as they contract in breadth. In the United States the northern group of mountains is divided from the southern by a broad depression in Central Wyoming, through which runs the Union Pacific railroad.

Rococo Architectural term for a peculiar style of ornamentation prevailing in France during the reigns of Louis XIV. and Louis XV. It was characterised by an excess of ornament in imitation of rocks and shell work associated with an irregular arrangement of doors and windows and an excessive use of curves.

Rod Measure of length and area, also called a pole or perch. In long measure it is 5½ yards and 40 rods make a furlong. A square rod called a rood, is 40½ square yards. In brickwork a cubic rod consists of 272 square feet of a standard thickness of 1½ bricks, or 306 cubic feet. It contains about 4500 bricks.

Rodent (Lat. *rodere*, to gnaw). Member of an order of gnawing mammals called *rodentia*. The beaver, rat, squirrel, mouse and rabbit are rodents.

Rodeo Spanish word used for the act of gathering together cattle for the purpose of branding them. It is done by the cowboys on the ranches of S. America and needs a good deal of skill. The word has come to be used for an exhibition at which cowboys show their skill in pursuing and catching the animals by means of ropes. Such exhibitions are held in both N. and S. America and have been seen in London.

Rodin Auguste. French sculptor. Born at Paris in 1840, from 1864 to 1870 he worked with Carrier-Belleuse, and then spent six years in Brussels, where he worked on the decoration of the Bourse. His first exhibition in the Salon was the "Bronze Age" of 1877, now in the Luxembourg. This was followed by several busts and the beginning of his twenty years' work on the "Portal of Hell." His famous "Burgesses of Calais" was exhibited in 1889, and the "Kiss" in 1898. His best known work in England is "Le Penseur," which was purchased in 1904 for the British nation. He died Nov. 17, 1917.

Rodney Baron. British admiral. Born at Walton-on-Thames, Feb. 13, 1719, and appointed admiral in 1778, George Brydges Rodney stands next to Nelson and Blake among the greatest of English seamen. One of his most brilliant victories was at Cape St. Vincent in 1780, when he defeated the Spanish fleet, allowing only 4 out of 11 ships to escape. In 1782 he drove the French fleet from the Atlantic by his crushing victory over De Grasse. He died May 24, 1792.

Roe-Deer Small deer (*Capreolus*) widely distributed in Europe, including Britain. About 2 ft. high at the shoulders, it has a reddish coat (brown in winter) and a white rump. The antlers are short, nearly vertical, with two or three tines. See DEER.

Roehampton District of Surrey. To the East of Putney, it was once a park around a residence built by the 2nd Earl of Portland. Here is Queen's hospital for providing maimed soldiers with artificial limbs.

Rogation Days Three fast days in the Roman Catholic and Anglican churches. They are the Monday, Tuesday and Wednesday before Ascension Day, the preceding Sunday being Ascension Sunday. They are days on which special intercessions are made.

Rögers Samuel. English poet. Born at Stoke-Newington on July 30, 1763, he entered his father's bank, and became

its head in 1793. In 1781 he contributed essays to the *Gentleman's Magazine* and wrote a comic opera the following year. In 1792 appeared his chief poetical work, *The Pleasures of Memory*. In 1803 he retired and lived a life of gentle luxury in St. James's Place, touring abroad, giving celebrated breakfasts, and collecting art. He was also very generous in a quiet way, despite his bitter wit, for which he is most often remembered. He died Dec. 15, 1855.

Rokeya Village of Yorkshire (N.R.), 3 m. from Barnard Castle, at the junction of the Greta and the Tees. Here the family of Rokeya had a castle in the Middle Ages. The village was the scene of Scott's poem *Rokeya*.

Roland Frankish hero. A soldier in Charlemagne's army, he was killed at Roncesvalles in 778, when the Franks, returning from a campaign in Spain, were suddenly attacked in the pass. Legend made him a great hero, one of the paladins. He appears in Italian poetry as Orlando.

The Song of Roland was written between 1066 and 1099. It is the oldest and best of the *chansons de geste* and deals with the conquest of Spain by Charlemagne.

Roland de la Platière, Manon Philipon, Madame. Wife of Jean-Marie Roland de la Platière. She was born in Paris, March 18, 1754, and was a woman of great intelligence and warmest sympathies. Devoted to literature and the arts, she held a famous salon, frequented mostly by Girondins, the political influence of which was considerable. The machinations of the Montagnards sent her to the guillotine, Nov. 8, 1793. Gazing at the statue of liberty, she exclaimed, "O Liberty! what crimes are committed in thy name!" Her *Mémoires* are widely read.

Rolland Romain. French writer. Born at Clamecy, Nièvre, Jan. 29, 1866, he became a professor at the Sorbonne, where he introduced the study of music and history. He has written many critical and historical works, including *Millets* (1902), *Beethoven* (1906) and *Jean-Christophe* (1904-1912), the biography of a German musician. In 1924 he wrote *Mahatma Gandhi* in defence of the Indian leader, and since then he has written *L'âme Enchantée* (1937) and *Goethe et Beethoven* (1931) amongst other works.

Roller Genus of birds, found in Europe and Asia and remarkable for their brilliant plumage. The blue roller, *coracias garrula*, with plumage brown and blue, visits Great Britain. The male bird has the curious habit, during the breeding season, of rolling over when in flight, hence the name. The word roller is also used for certain kinds of tumbler pigeons.

Rolleston Village of Staffordshire, on the Dove, 4 m. from Burton-on-Trent, on the L.M.S. Rly. The hall, which stands in a large park, was long the seat of the Mosley family.

Rolling Mill Name given to a department of a steel works where ingots of metal are reduced to a convenient size and rolled into bars or sheets. The preliminary reduction in size of heavy ingots is done in a cogging mill where the metal is passed first between angular-grooved rollers and then between flat-grooved rollers. For making plates or sheets plain cylindrical rollers are used and the machines are furnished with a reversing gear.

Rollright Name of two villages in Wiltshire, Great and Little Rollright, 3 m. from Chippling Norton. The Rollright Stones, near Little Rollright, are important remains of early man, and number about 60 in a circle. Apart from these is the King's Stone, 8 ft. high, and a dolmen of five stones called the whispering knights.

Rolls Charles Stewart. English engineer and airman. A son of Lord Llangattock, he was born in London, Aug. 28, 1877, and was educated at Eton and Trinity College, Cambridge. He studied engineering, both on the theoretical and the practical sides, and won a reputation by racing in motor cars. He founded the works which became the Rolls-Royce Co. He next devoted his time to aviation and made flights which at that time were remarkable. He was killed at Bourne-mouth during a flight, July 12, 1910.

Roman Catholic Church Numerically the largest body in Christendom. According to its own definition it is not a church among churches, but the Church. It claims (a) "One" in doctrine, sacraments and government. (b) "Holy" with a sanctity of life and character arising especially out of the sacramental system. (c) Catholic because its members are found in every part of the world. (d) "Apostolic," through an unbroken succession going back to the Apostle Peter. Among the distinctive doctrines of the Roman Church are the authority of ecclesiastical tradition, the seven sacraments, transubstantiation, the sacrificial aspect of the Mass, purgatory, the infallibility of the Pope and the immaculate conception of the Virgin Mary. The principal act of worship in the celebration of the Mass, said or sung in Latin, which, except in certain Eastern districts, is the official language of the Roman Church. The supreme council of the Church is the College of (70) Cardinals, who act as advisers to the Pope and at his death elect a successor. In 1931 the total Roman Catholic population of England and Wales was estimated at 2,206,000, Scotland, 607,000, Ireland, 3,243,000.

Romanes George John. British biologist. Born in Canada, May 20, 1848, and educated at Cambridge, he published various works describing his research, and supporting the Darwinian theory of evolution. His works include *Scientific Evidence of Organic Evolution* (1881) and *Mental Evolution in Man* (1888). He also lectured extensively. He was elected F.R.S. in 1879, and in 1890 settled in Oxford where he founded the annual Romanes lectureship. He died May 23, 1894. His work, *Darwin and after Darwin*, was published partly in his lifetime and partly posthumously.

Romanesque Architecture Style of architecture prevailing in Europe from the 9th to the middle of the 12th century and representing a development of the Roman tradition. The Roman basilica became the type for the church and from this developed the complex cruciform building. The use of the round arch and vaulting, the slenderness of the columns, the basket form of capitals, arched cornices and an increase in size, number and tracery of the windows are among the characteristics of this style.

Romani Town of Egypt, 20 m. E. of the Suez Canal. Here on Aug. 3, 1916, the Turks attacked a British force of Australian and New Zealand troops defending

the canal. The Turks won an initial success, but their advantages were soon lost and on the 8th they retreated with heavy losses.

Romania Term used by historians for the Latin kingdom that was founded at Constantinople in 1204. It was set up by Baldwin, Count of Flanders, and other crusaders, who took Constantinople and made Baldwin its king. The kingdom had a troubled career and in 1281 came to an end when the Byzantine emperor, Michael Palaeologus, retook Constantinople.

Romanoff Family name of the Tsars of Russia. It means "son of Roman," a Russian noble of the 16th century. His descendant, Michael, became Tsar in 1813, but the male line died out in 1730. The later Romanoffs are descended from Anna, daughter of Peter the Great, and her husband, Duke of Holstein-Gottorp. They ruled until the abdication of the Tsar Nicholas II. in 1917. Since his murder the Romanoffs have been represented by several grand dukes, uncles or cousins of the last Tsar. See NICHOLAS II.

Romans Epistle to the. First of the Pauline epistles in the New Testament Canon. It was probably written at Corinth at the close of Paul's third missionary journey to the Christians at Rome, whom he hoped to visit later. It is the most systematic and theological of all the apostle's writings, setting forth his doctrine of the revelation of God's righteousness for man's salvation. It also contains much ethical teaching.

Romanticism Name used for a free and imaginative style in literature and art. It tends to idealise the experiences and facts of nature and life, and is thus the opposite of realism. The Romantic movement developed late in the 18th century and with it the names of Scott, Burns and others of that period are associated. In the 20th century there has been a movement from romanticism to realism, both in literature and art.

Rome Capital city of the kingdom of Italy, the headquarters of the Roman Church, and formerly the capital of the Roman Empire. It stands on both banks of the Tiber, 17 m. from its mouth, and is an important railway centre. In it is the Vatican city, an independent state under the sovereignty of the Pope. The seven hills are the Capitoline and the Palatine, the centres of ancient and imperial Rome, the Quirinal, the royal and official quarter, the Esquiline and the Viminal, which are industrial districts, and the Aventine and Coelian, which are partly open country.

One of the world's most wonderful cities, Rome is full of objects of interest. Chief among these are the Forum, where in recent years excavations have discovered remains of many temples and other buildings, the forum of Trajan, the cathedral of St. Peter, and the Vatican with its artistic and other treasures and the Sistine chapel. Of the many churches that of St. John Lateran may be mentioned; near it is the Lateran palace. Other buildings are the ruined Colosseum, the castle of St. Angelo and the Pantheon; there are a number of palaces where the great Roman families lived. Modern buildings include those erected since 1871 for government purposes. The walls and some of the gates of the old mediaeval city still stand. Other features are the Catacombs (q.v.), the triumphal arches and the fountains.

The Corso is the chief street. Rome has a university and for it new buildings, forming a university city, were begun in 1932.

The foundation of Rome is usually dated 753 B.C. The emperor Augustus and his successors added building to building and made it the most magnificent city in the world. These buildings were chiefly temples and palaces, the latter on the Palatine hill, including the Golden House built by Nero, and the residence erected by Domitian. Other emperors were responsible for baths, aqueducts and other features of the city's life. These buildings began to decay after the fall of the empire, but a new era opened with the popes of the Renaissance, especially Sixtus V. To them we owe St. Peter's and most of the older buildings of the modern city. After 1871 a period of expansion began. It has three broadcasting stations, of which the most important operates at 441 M., 50 kW. Pop. (1931) 999,964. See VATICAN.

Rome Empire of the ancient world. It grew up around the city of Rome which remained its capital for the thousand years of its existence. Traditionally the city was founded in 753 B.C. and the first inhabitants were people of a Latin race. A few years later they united themselves with the Sabines and a series of wars made them famed in the region in which they lived. Ostia, at the mouth of the Tiber, was built, and the authority of the state was extended in other directions. In 529 Tarquinius, the last of the seven kings, was exiled, and the city became a republic.

Kings having been removed, the chief officials were the consuls, who served for a year. Under them many conquests were made, with the result that in some 200 years after Tarquin's expulsion the whole of Italy, with some slight exceptions, was ruled by Rome, which was soon strong enough to take full advantage of the decline of Greek civilisation. In 264 B.C. the first of Rome's wars with Carthage began. These lasted for over a century and in the end Carthage was not only beaten but destroyed.

During this struggle, Rome, now a strong naval power, made her first acquisition of territory outside the mainland. Sicily and then Corsica and Sardinia were acquired, and a little later Greece was invaded. The Macedonian kingdom was destroyed and the Roman armies were also victorious in Asia Minor. Spain and then Gaul were brought within the Roman sphere of influence and the Roman possessions in Africa were extended. Meanwhile the constitution of the city was being slowly altered so as to meet the new conditions. The conquest of Gaul was largely the work of Julius Caesar, in whose time the realm was torn by civil war, notwithstanding for the first time. In 46 B.C. Caesar made himself dictator, but in 44 he was murdered. His heir was his nephew, Octavian, who, as Augustus, became the first of the Roman emperors, a position he reached after crushing Antony and his other rivals, his crowning victory being at Actium in 31 B.C.

Soon after the death of Augustus the Romans conquered England and invaded Scotland, but this was almost the last of their conquests. The age of expansion was over. The Empire centred around the Mediterranean and included the south and north-west of Europe, Asia Minor and a fringe of Africa. It was divided into provinces, and under Augustus and his immediate successors was governed with wisdom and moderation. There were many wars with the barbarians who lived beyond its frontiers, but in the empire itself peace and

security prevailed, at least during the Augustan age, one also of great literary activity.

Augustus was followed in 11 B.C. by Tiberius and the succeeding emperors included Caligula, Nero and Domitian. Vespasian, a usurper, was a better ruler, but the best of all were Trajan, Hadrian and the Antonines, and the period during which they governed the empire is regarded by Gibbon as the most fortunate in the world's history. But with the death of Marcus Aurelius the decline began. His son, Commodus, a worthless ruler, was assassinated by the soldiers, who nominated emperors in quick succession, while the barbarians became more and more menacing. The decline was arrested by the efforts of Claudian, Aurelian, and above all, Diocletian, but the old system of government had been destroyed and the new one, with the realm under two, three or four caesars, was unequal to its tremendous task. In A.D. 323 Constantine the Great became emperor and soon made himself sole ruler, and in 330 he moved his capital from Rome to Byzantium. After his term there was one ruler in the east and another in the west, and most of them were fully occupied in resisting the barbarians who were bursting into the empire on all sides. Italy was overrun and Rome itself was sacked by Alaric. In 455 the last emperor of the west, Romulus Augustulus, resigned his barren honour and the Roman empire ceased to exist, the mediæval and Holy Roman Empires arising from its ashes. See **EMPIRE**.

Romford Urban district and market town of Essex, on the Rom, 16 m. from London, by the L.N.E. and L.M.S. Rlys. The industries include breweries and engineering works and important cattle markets are held here. An arterial road connects it with Wanstead. Pop. (1931) 35,918.

Romilly Sir Samuel. English lawyer. He was born in London on March 1, 1757, and entered Gray's Inn, specialising in chancery practice. He was appointed Solicitor-General and knighted in 1806, and sat in Parliament until 1818. Despite heavy opposition, he persevered in introducing bills to mitigate the severity of the criminal laws. He took part in the anti-slavery agitation, and opposed the suspension of the Habeas Corpus Act. He committed suicide on Nov. 2, 1818.

Romney New. Borough of Kent, 75 m. from London, on the S. Rly. It was one of the Cinque Ports and was governed by jurats, but in the course of time the sea receded and the harbour was left useless. About 2 m. to the W. is the village of Old Romney. Pop. (1931) 1786.

Behind the town is the district called **Romney Marsh**, covering about 200 sq. m., and noted as a grazing ground for sheep.

The title of Earl of Romney has been borne since 1801 by the Kentish family of Marsham.

Romney George. English painter. He was born at Dalton-in-Furness, Dec. 15, 1734, and after a period as a cabinet-maker, studied painting, became a portrait painter and came to London in 1762. For 35 years he devoted himself to his art, living mainly in London, and was very successful. His best known portraits are those of Lady Hamilton. He died Nov. 15, 1802.

Romsey Borough and market town of Hampshire, on the Test, 10 m. from Southampton and 80 m. from London, by the S. Rly. The magnificent Norman church was once the church of a religious house

for women. There is a trade in agricultural produce and some manufactures. Near the town is Broadlands, once the residence of Lord Palmerston. Pop. (1931) 4863.

Romulus Founder of Rome and its first king. Legend says that he was the son of Mars and Rhea, the daughter of a king and a vestal virgin. In infancy, Romulus and his twin brother, Remus, were thrown into the Tiber by their uncle, but the trough in which they were placed went aground. The children were suckled by a wolf and brought up by a shepherd. While Romulus and Remus were building walls around the city they founded, a quarrel arose and Remus was killed. Romulus became king of Rome and united the Romans and the Sabines. Taken to heaven in a chariot, he was deified and worshipped by the Romans as Quirinus.

Ronald Sir Landon. English musician. Born June 7, 1873, he studied music at the Royal College of Music, and in 1894 he conducted opera at Covent Garden. The same year he accompanied Mjha on an American tour. He has been principal of the Guildhall School of Music since 1910, and conductor of the New Symphony Orchestra since 1908. He is the author of some 300 songs and a great deal of music for the orchestra.

Ronaldshay Two islands of the Orkneys, called North and South, 3 m. and 8 m. long respectively. South Ronaldshay is the more fertile of the two, with some interesting remains, and 2000 inhabitants. North Ronaldshay has only 400.

The title of Earl of Ronaldshay is borne by the eldest son of the Marquess of Zetland. Lawrence John Dundas, who succeeded to the marquessate in 1929, was prominent in public life when Earl of Ronaldshay. He travelled much and wrote on his travels, was M.P. for Hornsey, 1907-16, and Governor of Bengal, 1917-22. He wrote the *Life of Lord Curzon of Kedleston*.

Roncesvalles Village of Spain, in the Pyrenees, 21 m. from Pampeluna. The pass through the mountains here is regarded as the place where the army of Charlemagne was defeated by the Basques on its return from Spain in 778, the paladin Roland being killed.

Rondeau Form of poem. It consists of close rhymes and a refrain, and was popular in France in the 17th century, when it contained 13 lines. These were divided into three unequal strophes. The 2 or 3 first words of the first line served as the burden and recurred after the 8th and 13th lines. There are English examples in the works of Swinburne.

Rondebosch Suburb of Capetown, South Africa. It lies 5 m. to the south of the city and comprises Groote Schuur (g.v.). There is a town hall in Rondebosch which is a favourite place of residence for workers in Capetown.

Ronsard Pierre de. French poet. He was born at the Chateau de la Poissonniere in Vendôme, Sept. 11, 1524. After spending his youth as page and courtier, he became deaf and turned to study and poetry. He formed a group with du Bellay and other poets which aimed at reviving French verse, and adopted the name of *La Pléiade*. This group of writers was responsible for the increase of classical influence in French poetry. He died at Tours, Dec. 27, 1585.

Röntgen Wilhelm Konrad von. German physicist. He was born in

Prussia, March 27, 1845, and after studying at Zurich, he was professor at Straassburg, Giessen, Würzburg and Munich. His original discoveries in science were numerous, but his most famous work was the discovery of the X-rays (1895), called now the Röntgen rays. Following on research by Hertz, Röntgen first showed that these rays would pass through the body and print a shadow picture of the bones on sensitive photographic plate. He died Feb. 10, 1923.

Rood Measure of land. It is 40 perches or a quarter of an acre and therefore consists of 1210 sq. yards. It is sometimes known as a square pole.

Rood Term applied to a cross and especially to the large crucifix in churches representing the scene of the Passion with the figures of angels or S. John and the Virgin on either side. It was placed usually upon the rood screen separating the nave from the chancel, and was probably coloured. The rood was common in English churches up to the time of the Reformation.

Rook Gregarious bird of the crow family (*Corvus frugilegus*). In Gt. Britain it remains through the year, in more northern climes it is a migrant. Its colonies are usually in high clime. The plumage is black, with a bare patch at the base of the bill, said to be caused by digging for the insects and grubs which mainly form its food. In the summer the colonies raid the grain fields.

Rooke Sir George. English sailor. He was born near Canterbury in 1650, son of Sir William Rooke. Entering the navy, by 1689 he had risen to the rank of Rear-Admiral. In 1692 he was knighted for his services at Cape La Hogue. He commanded the successful Cadiz expedition of 1702, and with Sir Cloudesley Shovel he captured Gibraltar in 1704. He died Jan. 24, 1709.

Roosevelt Franklin Delano. American politician. Born in New York, Jan. 30, 1882, and educated at Harvard and Columbia, he was admitted to the New York Bar in 1907 and was a member of the New York Senate 310-13. From 1913-20 he was Assistant-Secretary of the navy, and was made Governor of New York, 1920-31. He is the author of *Whither Bound?* (1926), and *The Happy Warrior* (1928). In 1932 he was elected as President of the United States, defeating Mr. Hoover.

Roosevelt Theodore. 26th President of the U.S.A. He was born in New York, Oct. 27, 1858, his father being of Dutch descent, and his mother, Scotch-Irish-Huguenot. He was educated at Harvard University. Entering public life early, he was President of the New York Police Board, 1895-97, where he made strenuous efforts to stem corruption. At the outbreak of the Spanish War he raised the famous "Rough Riders," commanding the regiment himself. In 1898 he became Governor of New York State, and in 1900 Vice-President of the U.S.A., automatically becoming President on the assassination of McKinley, Sept. 14, 1901. During his term of office he had many conflicts with "Big Business," directing all his efforts to prevent the gradual strangulation of the free development of industry in the interests of the people. The result was that in 1904 he was re-elected for a second term by an overwhelming majority. In 1905 he was largely instrumental in bringing about peace between Japan and Russia, and was awarded the Nobel Peace Prize. In 1912

he split the Republican vote between himself and Taft, thus causing the election of Woodrow Wilson, Democrat. His great interest, apart from politics, was big game hunting. He made expeditions to Brazil and Africa, and wrote several books on the subject, also on historical and general matters. He died Jan. 6, 1919.

Root Elihu. American lawyer and politician. He was born at Clinton, New York, Feb. 15, 1845. After serving with the Republican Party as Secretary for War (1899-1904) and Secretary of State (1905-09), he devoted himself to the cause of international peace and was awarded the Nobel Peace Prize in 1912. He headed the U.S. Diplomatic Mission to Russia in 1917 and represented his country at the Washington Disarmament Conference in 1921. His writings include *The Citizen's Part in Government*, 1907, and *Men and Policies*, 1924.

Rorke's Drift Historic place on Buffalo River, Zululand. On Jan. 22, 1879, shortly after the disaster to a British force under Lord Chelmsford at Isandhlwana, Rorke's Drift was successfully held against a Zulu onslaught by a handful of the 24th Regiment under Lieutenants Chard and Bromhead.

Rorqual Animal belonging to one of the two divisions of the whalebone whales. They include the largest living animal, the blue whale, but are less valuable than right whales as their whalebone is coarse and short and there is less blubber. They live in northern waters.

Rosa Carl August Nicolas. German musician. He was born at Hamburg, Mar. 22, 1842. The opera company which bears his name was formed in 1875 with the object of encouraging English composers and producing their works. His first wife was the famous operatic soprano Madame Parepa. He died in Paris, April 30, 1889.

Rosa Salvatore. Italian artist. The son of an architect and law surveyor, he was born at Renella, near Naples, July 21, 1615. He studied under Ribera and afterwards under Falcone, the battle-painter. His picture, "Tityus tortured by the Vulture," brought him fame in 1638. Though he was also distinguished as poet and etcher his reputation rests mainly upon his landscapes, which are characterised by a wild and rugged freedom. He died in Rome, Mar. 15, 1673.

Rosapenna Seaside resort of Co. Donegal, Irish Free State. It is on the north coast and is reached by road or steamer from Londonderry.

Rosario Second largest city in Argentina. On the River Parana, 190 m. from Buenos Ayres, it is an important railway centre and possesses an excellent harbour, and the largest sugar refinery in Argentina is found here. The town is laid out with mathematical regularity. It was founded in 1730, but was still no more than a small village in 1850. Pop. 265,000.

Rosary String of beads used by Roman Catholics for counting their prayers. The devotions themselves are sometimes called rosaries. The festival of the Rosary, kept on the first Sunday in Oct., commemorates the victory of the Christians over the Turks at Lepanto in 1571.

Roscoe Sir Henry Entfield. British chemist. Born in London, Jan. 7, 1833, he studied chemistry at University

College, London, and later at Heidelberg (under Bunsen). For thirty years he held the Chair of Chemistry at Manchester University, and was M.P. for South Manchester from 1885-95. He served as Vice-Chancellor of London University from 1896-1902, became an F.R.S. in 1893, and a knight in 1884. He died at Leatherhead, Dec. 18, 1915.

Roscommon Market town of Co. Roscommon, Irish Free State; also the county town. Founded about 700, it is an agricultural centre, 85 m. from Dublin, on the G.S. Rlys. There are ruins of a 13th century castle. Pop. (1931) 1830.

Roscommon County of Ireland. It is in the Province of Connaught and wholly island. It covers 990 sq. m. and is bounded by the Shannon and the Suck. There are hills in the north and east and the country has many lakes, Rees and Allen among them. Cattle, sheep and pigs are reared, especially on the plain of Boyle. Oats and potatoes are grown and a little coal is mined. Roscommon is the county town; other places are Elphin, Boyle and Castleteragh. Pop. (1926) 83,556.

Roscrea Market town of Co. Tipperary, Irish Free State. It is on the Little Brosna River, 77 m. from Dublin, on the G.S. Rlys. The town has a round tower, and was the seat of a bishop. It is a centre for the sale of cattle and agricultural produce. Pop. (1926) 2770.

Rose Flowering tree or shrub of the order Rosaceae. From the wild rose, *Rosa canina*, have been developed numerous strains, added to each year, with widely different characteristics. The main groups are ramblers, climbing roses, bush and standards, in each of which are profusion of varieties. As a result of hybridization and careful selection types have been evolved which are free flowering and yield blooms for 5 or 6 months of the year. Autumn is the best time to plant.

Rosebery Earl of. English statesman. Archibald Philip Primrose was born in London, May 7, 1847, the son of Archibald, Lord Dalmeny, his paternal grandfather being the 4th Earl of Rosebery. He went to Eton and Christ Church, Oxford, and in 1868 succeeded his grandfather in the earldom.

In 1878 he married the heiress, Hannah Rothschild, and in 1881 he joined the Liberal Ministry as Under Secretary to the Home Office. In 1883 he was made first Commissioner of Works and in 1885 Lord Privy Seal. He followed Gladstone when the Liberal Party was divided on home rule and in 1886 was Foreign Secretary. He was again Foreign Secretary, 1892-94 and in 1894 succeeded Gladstone as prime minister.

The Radicals disliked his idea of a continuous foreign policy and the Nonconformists his association with the turf. In 1895 he resigned and he never took office again, using his influence in the House of Lords till his retirement from politics in 1905. In 1910 he denounced the budget introduced by Lloyd George. He died at Epsom, May 31, 1929. In 1911 he was made Earl of Midlothian. Three times his horses won the Derby—1894, 1895 and 1905.

Rosebery's fame rests upon his literary gifts, rather than his political career. A graceful speaker, he coined phrases that have become historic, while he was equally attrac-

tive with his pen. His books include studies of Pitt, Peel, Napoleon and Chatham, and a short life of his friend, Lord Randolph Churchill.

Lord Rosebery had four children. His elder son, Lord Dalmeny, a cricketer and hunting man, succeeded him as 6th earl. The younger son, Neil Primrose, was killed in Palestine, Nov. 18, 1917.

Rose Mallow (*Hibiscus*). Genus of tropical and subtropical plants and shrubs of the order Malvaceae. The beautiful flowers are striking and richly coloured. Largely cultivated under glass, some varieties can be grown in the open air under suitable conditions. There are many species, the two shrubs, *H. syriacus* and *H. rosa-sinensis*, together with *H. roseus*, being the true rose mallows. The name is also given to a specially large and beautiful species of hollyhock.

Rosemary (*Rosmarinus officinalis*). Hardy evergreen perennial shrub. Two or three feet in height, it has fragrant green leaves from which an aromatic oil is extracted. The small violet flowers are borne in early summer.

Roseneath Watering place of Dumbartonshire. It is on the Gareloch, near Helensburgh, and is a calling place for steamers. Roseneath Castle, a modern building near the site of an older one, is a seat of the Duke of Argyll.

Rose of Jericho (*Anastatica hieracifolia*). Cruciferous plant of S. Europe with small, white flowers. After flowering the plant withers and the stems curve inward, forming a dry, shrivelled ball. Being light, these balls are carried by the wind in all directions.

Roses Wars of the Civil war that took place in England between 1455 and 1485. It arose when Henry VI. was king. He became insane, and Richard, Duke of York, like Henry, a descendant of Edward III., claimed the throne. Henry's supporters, the Lancastrians, took a red rose as their symbol, and the Yorkists a white one.

There were a number of battles, beginning with St. Albans in 1455, with periods of truce between them. At the Battle of Northampton, in 1460, Henry was made prisoner and in 1461 York was killed at the Battle of Wakefield. The Lancastrians were defeated at Towton and their cause was hopeless until the Earl of Warwick changed sides in 1470. Henry was then released from prison and restored to the throne. However, at Barnet and Tewkesbury in 1471, the Lancastrian armies were crushed and the war was virtually over, although it is usually regarded as ending with the Battle of Bosworth, where Henry VII. defeated his enemies in 1485.

Rosetta Stone Inscribed slab of black basalt found at Rosetta in the western delta of the Nile by a French artillery officer in 1799. It came into the possession of the British Government later and is now in the British Museum. It bears fourteen lines of hieroglyphic writing, thirty-two of demotic, and fifty-four of Greek, and records a decree made by Ptolemy V. Epiphanes about 196 B.C. It furnished a key to the decipherment of Egyptian writing.

Rosewater Solution of a small quantity of otto of roses in water prepared usually by distillation. Considerable quantities are made in and exported from the South of France and other rose-growing countries.

Rose Window Large, circular window in Romanesque and especially Gothic cathedrals. It is divided by elaborate tracery into a central compartment with others radiating from it, the divisions being filled with stained glass.

Rosicrucians Supposed secret society. It is represented in a book called *Fama Fraternitatis des loblichen Ordning des Rosenkreuzes*, which appeared at Cassel in 1614, as having been formed about 150 years earlier to (among other things) relieve sickness and poverty with gold manufactured by use of the philosopher's stone. Though the literature on the subject is extensive it is doubtful whether such a society existed. The word is used as the title of an order in Freemasonry.

Roslin Village of Midlothian. It is 6 m. south of Edinburgh, on the L.N.E. Ry. It is famous for its chapel and ruined castle. The chapel is the choir of an unfinished church and is remarkable for the beauty of its carvings, especially its pretence pillar. It dates from 1446. The castle, of which a considerable portion remains, was a seat of the St. Clair family. At one time Roslin was a burgh, to-day it is a mining centre. From it the family of St. Clair Erskine takes the title of earl.

Ross Urban district and market town of Herefordshire. It is an agricultural centre, on the Wye, 12 m. from Hereford, on the G.W. Ry. Pop. (1931) 4738.

Ross Sir John. Arctic explorer. Born in Wigtownshire, June 24, 1777, he entered the navy at the age of nine. After good service in the wars against France, he began Arctic exploration in 1818, when he attempted to find a North-West Passage, and explored Baffin's Bay. He was knighted in 1833, and in 1850 attempted without success to find Sir John Franklin. He died on Aug. 30, 1856.

Ross Sir Ronald. British physician and bacteriologist. Born at Almora, India, May 13, 1857, he studied medicine in London, and in 1881 entered the Indian Medical Service. Until 1899 he made researches into the disease-carrying insects, and later became Professor of Tropical Medicine at Liverpool University. After being at King's College, London, in 1913, he became Director-in-Chief of the Ross Institute and Hospital for Tropical Diseases. During the Great War and after he was the chief consultant on malaria. He received a Nobel prize for medicine in 1902, and was knighted in 1911.

Rossall Village of Lancashire. It is on the coast, three m. from Fleetwood. Here is a school for boys opened in 1844, and one of the great public schools.

Rosse Earl of. Irish title borne by the family of Parsons. It dates from 1806 and the family seat is Birr Castle, Parsonstown. Its most famous holder was William Parsons, the 3rd earl. He was born, June 17, 1800, and sat in Parliament from 1823 to 1834. He won a great reputation as an astronomer. At Birr Castle he built a great telescope and did much valuable work. He was president of the Royal Society, 1849-54 and died Oct. 31, 1867.

Rossetti Christina Georgina. English poetess. She was born in London, Dec. 5, 1830, and, except for very short absences, her life was spent in the metropolis. Her first published book of poems

was *Goblin Market* (1862). This was followed by a steady output of verse characterised by deep religious feeling and delicate grace. Miss Rossetti was the sister of Dante Gabriel Rossetti. She died Dec. 29, 1894.

Rossetti Dante Gabriel. English poet and painter. He was born in London, May 12, 1828, the son of Gabriele Rossetti, an Italian poet and critic. His poem *The Blessed Damsel* was written before he was twenty, but his early fame was that of a painter. In art he was influenced by Ford Madox Brown and became one of the founders of the Pre-Raphaelite Brotherhood (q.v.) in 1848. A collection of poems, after being buried with his wife (Elizabeth Siddall, d. 1862) was disinterred and published in 1870. A great passion for beauty is the principle which unifies his art and poetry. He died at Birching-ton, April 9, 1882.

Rossetti William Michael. English literary critic. Brother of Dante Gabriel Rossetti, he was born in London, Sept. 15, 1829, and was a civil servant until his retirement in 1894. He translated Dante's *Inferno* (1865) and wrote a memoir of his brother (1895). He also edited the *Germ*, the magazine of the Pre-Raphaelite Brotherhood. He died Feb. 6, 1919.

Rossi Giovanni Battista de. Italian painter and sculptor. He was born at Florence in 1494. At the invitation of Francis I, he undertook the decoration of Fontainebleau Castle. His work consists of frescoes, representing mythological scenes and incidents from the life of St. Francis. One of his pictures, "Lamentation for Christ," hangs in the Louvre. He committed suicide in 1541.

Rossini Gioacchino Antonio. Italian composer. He was born at Pesaro, Feb. 29, 1792. The son of a strolling player, he studied music at Bologna, and began his musical career as a singer and later as accompanist. His most famous compositions are *Il barbiere di Siviglia* (1816), *Guillaume Tell* (1829) and *Stabat Mater* (1832-39). Though he composed no work of importance after the age of thirty-seven, his place among the greatest writers of opera is unquestioned. He died Nov. 13, 1868.

Rossire Seaport and holiday resort on the coast of Wexford, Irish Free State. It is 6 m. from Wexford and 97 from Dublin, on the G.S. Ry. Its harbour was enlarged for the G.W. Ry. steamer service between Fishguard and Ireland, started in 1906.

Rosslyn Earl of. Title borne by the family of Erskine. The 1st earl was Alexander Wedderburn. Born Feb. 13, 1793, the son of a Scottish lawyer, he became a barrister in London, and an M.P. In 1771 he was made Solicitor-General, and in 1778 Attorney-General. In 1780 he became Chief Justice of the Common Pleas, and from 1793 to 1800 he was Lord Chancellor. In 1780 he was created Baron Loughborough, and in 1801 Earl of Rosslyn. He died Jan. 2, 1805.

Leaving no sons, Rosslyn's title passed to a nephew, James St. Clair-Erskine, who, since 1782, had sat in the House of Commons. He was Lord Privy Seal, 1829-30, and Lord President of the Council, 1834-35. He died in 1837. James Francis St. Clair-Erskine (b. 1869), became the 5th earl in 1890. His eldest son is called Lord Loughborough.

Ross Sea Antarctic Sea. It was discovered by, and named after,

Capt. J. C. Ross, R.N., in 1839. In 1841, after penetrating a wall of pack ice, he found the sea to be ice-free.

Ross-shire County of Scotland, in full Ross and Cromarty. In the N. of the country, it stretches from the E. to the W. coast. It includes part of Lewis and some other islands of the Hebrides. Dingwall is the county town: other places are Stornoway, Cromarty, Tain, Strathpeffer and Invergordon. The soil is unferile and largely devoted to deer forests. Of the many mountains, some are nearly 4000 ft. high. The Ainess, Oykel and Conon are the chief rivers. Maree and Fannich are the chief of many lochs. The area is 3089 sq. m. One member is returned to Parliament. Ross and Cromarty were separate counties until 1889, when they were united, as Cromarty consisted of small pieces of land scattered throughout Ross. Pop. (1931) 62,802.

Rostand Edmond. French dramatist. He was born at Marseilles, April 1, 1868, and educated at the Lycée there. He is the author of numerous plays, including *Les Romanesques*: the brilliant *Cyrano de Bergerac*; *L'Aiglon* and *Chantecler*, a farmyard fantasy. He died Dec. 2, 1918.

Rostock Town in the German republic of Mecklenburg. It is 8 m. from the coast, on the river Warnow, which is navigable up to the town for sea-going ships of 19 ft. draught. It is one of the most important commercial centres on the Baltic. Pop. 72,200.

Rostrum Platform from which a speaker addresses an audience. In ancient Rome the rostra (plural) was the platform between the forum and comitium used by public speakers. It was so-called from the rostra or beaks of captured galleys which decorated it.

Rosyth Seaport of Scotland. It is on the N. side of the Firth of Forth. The dockyards and other works were begun in 1909 and greatly enlarged during the World War, when Rosyth became one of the chief naval stations. It had wet and dry docks capable of taking the largest warships. Land was recovered from the sea and protected by a sea-wall. The great basin was nearly a mile long, and near it was a submarine basin. In 1925 the dockyard was closed.

Rotary Club Organization for business men. The first club was established in 1905 by Paul Harris, a Chicago lawyer. Each member represented a different trade or profession, and its motto was service not self. Other clubs were established in the United States, and the idea spread to Britain. The members meet at stated times for luncheon, and afterwards discuss some social or other topic. The clubs are federated into an international association which holds an annual convention. The international headquarters are in Chicago.

Rotation Form of motion in a circular path of a line, plane or solid. In a line having one end fixed, the other or free end may describe a circle round it in the same plane or parallel planes. Similarly, a plane may rotate around any point or line in it: and a rotating solid revolves round a row of fixed points forming a straight line and termed the axis of rotation. The rate of rotation may be measured by the number of revolutions in a given time, or may be expressed in terms of angular velocity.

Rothamsted Village of Hertfordshire. It is near Harpenden. Its manor house and the estate were the property of Sir John Bennet Lawes (1814-1900), who here carried out valuable agricultural experiments. In 1889 he endowed the station and since then the work has been carried on by the Lawes Agricultural Trust. The experimental station covers 40 acres and receives assistance from public funds.

Rothbury Market town and urban district of Northumberland. Much frequented by tourists, it is situated on the Coquet, 11 m. from Alnwick, on the L.N.E. Rly. Pop. (1931) 1255.

Rothenburg Town of Bavaria. It stands on the Tauber, 36 m. from Nuremberg. One of the most perfect mediaeval towns existing, it is still surrounded by its walls and gates, and its narrow streets remain unchanged. The town's capture during the Thirty Years' War is annually celebrated by a play. Pop. 9000.

Rothenstein Sir William. English artist. He was born Jan. 29, 1872, in Bradford, and studied at the Slade School of Art. He became famous through his lithographed portraits of distinguished authors, and during the Great War was made one of the official painters to the British armies. In 1920 he was appointed Principal of the Royal College of Art, South Kensington. He published his *Reminiscences* in 1932.

Rother River of Sussex. It rises S. of Rotherfield and enters the sea at Rye. Its length is 30 m., and for part of its course it forms the boundary between Kent and Sussex.

Rotherfield Village of Sussex. It is 8 m. from Tunbridge Wells and 39 from London, by the S. Rly.

Rotherham County borough and market town of Yorkshire (W.R.). It is 6 m. N.E. of Sheffield and 163 from London, by the L.M.S. Rly. The rivers Don and Rother meet near the town, which has glass and pottery manufactures, and metal and chemical works. Pop. (1931), 69,689.

Rotherhithe District of London. Part of the borough of Bermondsey. A tunnel connects it with Stepney across the river, and in the district are the Surrey Commercial Docks.

Rothermere Viscount. English newspaper proprietor. Harold Sidney Harmsworth was born at Hampstead, April 26, 1868, being a younger brother of Viscount Northcliffe. He left the civil service to join his brother in the publishing business, and the two soon made of this a gigantic concern. In 1896 the two started *The Daily Mail* side by side with that of the Amalgamated Press, which was confined to weekly and monthly publications. In 1910 he was made a baronet: in 1914 a baron: and in 1919 a viscount. In 1916 he was made Director-General of the army clothing department, and in 1917 he was Minister for Air.

In 1922, on his brother's death, he returned to *The Daily Mail* as chief proprietor, and became a leading figure in the newspaper world. Lord Rothermere is one of the most generous private benefactors of his time. He has endowed professorships at both the older universities. He bought the site of Bethlem Hospital for a public pleasure ground, and

has made the acquisition of the site of the Foundling Hospital possible.

Roths Burgh of Moray. It is on the Spey, 10 m. from Elgin, on the L.N.E. Rly. Pop. (1931) 1260.

The title of Earl of Rothes has been borne by the family of Leslie since 1457 or earlier. In 1880-81, its holder, who was Lord Chancellor of Scotland, was a duke. The title has several times been held by a woman. The earl lives at Leslie House, Fife, and his eldest son is called Lord Leslie.

Rothsay Burgh and watering place of Buteshire, also the county town of Buteshire. On Rothsay Bay, and 40 m. from Glasgow, the town has a good harbour and some fishing and shipping, and is a popular pleasure resort and yachting centre. Pop. (1931) 9346.

The Prince of Wales bears the title of Duke of Rothesay. The 1st duke was David, son of King Robert III., and it was borne by other heirs to the Scottish throne.

Rothley Village of Leicestershire. It is 108 m. from London and 5 m. from Leicester, on the L.N.E. Rly. Here is Rothley Temple, the house in which Lord Macaulay was born. In the Middle Ages the knights templars had a preceptory here.

Rothschild Name of a world-famous banking family. The founder was Meyer Amschel, who was born in Frankfurt in 1743, and who laid the foundations of their great fortune by gaining the confidence of the Landgrave of Hesse, by commissions on moneys sent by the British Government to Wellington in Spain during the Peninsular War, by raising large loans for Denmark, 1804-12, and by skilful management of the Landgrave's fortune. He died Sept. 13, 1812, leaving five sons, who established themselves respectively in Frankfurt, Vienna, London, Naples and Paris. The grandson of the third (1840-1915), was the first Jew to be made a peer (1885), and the present holder of the title, Lionel Walter (b. Feb. 8, 1868), succeeded his father in 1915.

Rothwell Urban district of Yorkshire. It is 4 m. from Leeds and is a centre of the coal-mining and cloth-manufacturing industries. Pop. (1931) 15,639.

Rothwell Urban district of Northamptonshire. It is 4 m. from Kettering, on the L.M.S. Rly. The town has a Jesus hospital dating from 1590. The chief industry is the manufacture of boots and shoes. Pop. (1931) 4516.

Rotorua Town and lake in New Zealand. The lake is 7 m. long by 5 m. broad, with the volcanic island of Mokoia in the centre. The town, on the S.W. shore of the lake, is famous as a beauty spot and health resort, and also has a scientific interest as the centre of the remarkable volcanic hot spring district. It is surrounded by luxuriant forests, with the curative baths at Whakarewarewa close at hand.

Rotten Row Thoroughfare in Hyde Park, London. It extends from Hyde Park corner to Coalbrookdale Gate, and is reserved for horse-riding. See HYDE PARK.

Rotterdam City and seaport of Holland. It is on the New Maas, 20 m. from the sea, is accessible to the largest ships and has 16 m. of quays. Long a famous city, Rotterdam was the birthplace of Erasmus (q.v.) whose statue is in the great

market-place. The 15th century Groot Kerk contains a famous organ with nearly 5000 pipes, and there are a number of museums and an old and a new town hall. Apart from ship-building, Rotterdam manufactures tobacco, cigars, margarine, rope, leather, etc., but is more important as a commercial centre, having an extensive overseas trade. The city has many canals. Pop. (1930) 586,000.

Rotunda Circular building usually with a dome. The most famous example is the Pantheon at Rome built by Hadrian in the 2nd century and now used as a church.

Roubaix Town of France. It is 8 m. from Lille, and is served by railway and canal. Before the war the town shared with Turcoing pre-eminence as one of the busiest industrial centres in France, especially in the production of woollen, cotton and other textiles. It was occupied by the Germans, 1914-18. After the war it was adopted by Bradford and was rebuilt. Pop. 124,000.

Rouble Russian coin. Before 1917 it was coined in silver and to some extent in gold. It was worth 2s. 1½d., and was divided into 100 kopecks. Paper roubles were issued in immense quantities during the war period and soon became valueless. Under the Soviet rule the rouble has been restored to its former value.

Rouen City and river port of France. It is on the Seine, 87 m. from Paris and 54 from the coast at Havre. As the capital of the old duchy of Normandy, the old part of the city is full of interest. Chief among its buildings is the Gothic cathedral. It dates mainly from the 13th century and is notable for its west front, its towers, its monuments and its stained glass. The Church of St. Ouen is regarded as a wonderful work of art. Those of St. Maclou and St. Vincent are famous for their stained glass. The palais de justice is a fine Gothic building, and there is a gateway containing a large clock, the celebrated *grande horloge*. There are suburbs across the river which is crossed by three bridges, one a transporter bridge.

Rouen is a prosperous river port. Other industries are the manufacture of cotton, chemicals, machinery, soap, boots and other articles, the refining of oil and railway shops. Pop. (1931) 122,937.

Rouge-et-Noir Gambling card game also known as Trente-et-Quarante (q.v.)

Roughrider. Trainer of unbroken horses. In its plural form the name is also given to irregular mounted troops, such as T. Roosevelt raised for service in Cuba during the war between the United States and Spain.

Roulers Town of Belgium. It is 19 m. from Bruges, and is an important railway junction. It is a centre of textile manufactures, and at one time was famous for its cloth. From 1914 to 1918 it was in German occupation. Pop. 26,000.

Roulette French game of chance. It is a feature of the gambling rooms of Monte Carlo. The roulette table, covered with a green cloth, is made up of two similar halves with a space in the middle for the wheel, the spaces at the side being marked "passe," "pair," "manque," "imPAIR," and with black and red diamonds. The wheel is divided into 37 compartments, alternately

black and red, the 37th being zero. The croupier throws the ball as the wheel is spinning, and the number upon which it comes to rest wins.

Roundel Name used for a tune, a poem and a dance. The poem was sung to the tune, the first strain being repeated at intervals and so giving the idea of a circle, or small round. In the dance the dancers stood in a circle and joined hands. In heraldry roundels are circular charges, and are given different names according to their tinctures, gold or yellow being called *besant* and silver or white a *plate*.

Rounders Outdoor game. The implements are a stick and a ball. The members of one side strike the ball in turn, when it is tossed to them, each as he does so running to a base, of which there are several in the field; if possible he runs round to the striking post, passing all the bases. If a member of the fielding side hits him with the ball before he reaches a base, he is out. He is also out if the ball is caught in the field or if he falls three times in succession to hit the ball.

In 1880 an association was founded, and rules for the game were drawn up. These provide for sides of 10 players each, and a stick or bat not more than 35 inches in length. There are five bases, 15 or 20 yards from each other, and the field is shaped like a pentagon. A hard ball is used, and to be out the striker must be touched with it instead of having it hurled at him. Baseball certainly, and cricket probably, owe something to rounders. See **BASEBALL: CRICKET**.

Roundhead Epithet of derision applied by the king's men to a supporter of the Parliament during its struggle with Charles I. It was an allusion to the puritan habit of wearing the hair cropped close to the head.

Round Robin Name for a petition signed by several persons. It was given a round shape so that those addressed could not tell who first wrote his signature, and so possibly penalise him as a ring-leader. The name is also used popularly for certain small fishes.

Round Table Table which King Arthur and his knights used for their feasts. It was made round so that there should be no jealousies about precedence. According to legends an order of the round table was founded by Uther, the father of Arthur. It had 150 members. There are references to it in Malory's *Morte d'Arthur* and Tennyson's *Idylls of the King*.

Round Tower Tall, slender, circular and somewhat tapering edifice surmounted by a conical cap. Round towers are found mostly scattered over Ireland, but three occur in Scotland, and they are supposed to have been used as watch-towers or refuges. The older towers probably date from the 9th century, but many were built in the 12th and 13th centuries. The door of the tower was 6 to 20 ft above ground, and communicated by ladders with the several storeys.

Roup Disease of poultry. It is something like catarrh and may arise from keeping the birds in restricted surroundings. It is marked by discharges from nose and mouth and is very contagious. The birds attacked should therefore be isolated and treated by a veterinary surgeon.

In Scotland a *roup* is the usual name for an auction.

Rousseau Jean Jacques. French writer and philosopher. He was born at Geneva, Jan. 28, 1712. After a more or less vagabond career, he found his way to Paris, and achieved fame in 1750 with his *Discours sur les Sciences et les Arts*. *La Nouvelle Héloïse*, with its genuine sentiment and love of nature, was the forerunner of Romantic literature in France. *Emile* did much to promote modern theories of education and the upbringing of children, and *La Confession de J. J.* *Vicair Savoyard* helped to purify and simplify the religion of his contemporaries. In the political sphere, *Du Contrat Social* was to a large extent responsible for the ideas and policy of the revolutionary leaders in 1789. He died July 2, 1778.

Rousseau Pierre Etienne Theodore. French artist. Born in Paris, April 15, 1812, he studied art there. Soon he attracted attention by his landscapes, although it was not until 1849 that they were admitted to the Salon. In 1848 he settled at Barbizon, and was a leading member of the group there until his death, Dec. 22, 1867. Rousseau was much influenced by the Dutch painters, and in his turn influenced those who followed him.

Rowfant Railway station of Sussex, on the S. Ry. It is 4 m. from E. Grinstead, near is a Tudor house, famous for the collection of books made here by Frederick Locker-Lampson (1821-95).

Rowing Art of propelling a boat by means of oars. It forms part of every seaman's calling, whether in the fighting or the merchant service, and is also a sport. As a sport it has been brought to a wonderful state of perfection by improvements in the build of the boats and the style of oarsmanship. The most famous rowing race is that held annually between the universities of Oxford and Cambridge. It has been held since 1829, each crew numbering eight. In other races the crews number four or two, an even number being essential as each man pulls a single oar.

In sculling, a man uses two sculls, and, therefore, sculling races can be held between two competitors. A rowing crew usually carries a cox for steering the boat, but races between coxswainless fours are held. A great event of the rowing year in England is the regatta, founded in 1839, at Henley-on-Thames, to which crews come from many parts of the world; and of which there is an offshoot in Australia. Practically all rowing races are strictly confined to amateurs. To control the sport there is an amateur rowing association, and the chief rowing club is the Leander, with headquarters at Henley.

Rowlandson Thomas. English artist. Born in London in 1756, he studied art here and in Paris. His landscapes and portraits made him popular in his day, but his more enduring fame rests upon his caricatures. These dealt with current political events and occupied him from 1784 until his death. They were remarkably powerful, both in conception and in design, and expressed the idea of the populace. Rowlandson died in London, April 22, 1827. In another vein were his drawings entitled "The Three Tours of Dr Syntax."

Rowley Regis Market town and urban district of Staffordshire. It is 5 m. from Birmingham

on the G.W. Rly. The industries include the manufacture of hardware and coal-mining. Pop. (1931) 41,238.

Roxana Wife of Alexander the Great. She was the daughter of a prince of the Bactrians. The king met her when on a campaign in Asia and married her a short time before his death. After that event she bore him a son, Alexander, the heir to the vast empire. She took him to Macedonia, but soon the pair were imprisoned, and in 311 B.C. were murdered by order of Cassander.

Roxburgh Burgh of Scotland, now represented by a village. Near Kelso on the Tweed, it is on the L.N.E. Rly., and is sometimes called New Roxburgh. The burgh stood where the Tweed and the Teviot unite, and was an important border fortress in the Middle Ages.

Roxburghe Duke of. Scottish title borne by the family of Innes-Ker. In 1616 Robert Ker was made Earl of Roxburghe, and in 1707 John Ker, the 5th earl, was made a duke. He was a Secretary of State at that time, and this title was a reward for helping to unite the two parliaments. John, the 3rd duke, is known as the curator of a famous library which was sold in 1812. He died in 1804 without sons and the dukedom was claimed by Sir James Innes, a descendant of the 1st earl. His claim was admitted, and his descendants, the family of Innes-Ker, have since held the title. The duke's seat is Floors Castle, near Kelso, and his eldest son is called the Marquess of Bowmont.

Roxburghshire County of Scotland, touching the English border, and covers 666 sq. m. It contains peaks of the Cheviot and the Eildon Hills, and is famous for its scenery. The chief rivers is the Teviot; others are the Tweed, Liddel, Aik and Jed. Jedburgh is the county town; other places are Hawick, Melrose, Kelso and St. Boswells. The county contains the ruined abbeys of Melrose and Jedburgh, and such famous border strongholds as Hermitage, Branxholm and Hadden. Roxburghshire is famous for its sheep. With Selkirkshire it sends one member to Parliament. Pop. (1931) 45,787.

Royal Academy of Arts, see ACAD-EMY; of Music, see MUSIC.

Royal College of Musicians, London college. It has commodious quarters in Kensington, which include a fine organ and well-appointed library, and offers Associateship and Fellowship by a combined practical and theoretical examination. The college, whose president is elected annually, was founded in 1864.

Royal Family Term including the sovereign and all the members of his family. In Great Britain, the members of the royal family are confined to the descendants of Queen Victoria, the other descendants of George III. and earlier sovereigns, having, for one reason or other, passed out of the circle. Some of the descendants of Victoria have also passed out of it by having married into foreign royal or imperial families. Members of the royal family are addressed as royal highness, and enjoy precedence on state occasions.

The British royal family traces its descent back to Alfred the Great and the Anglo-Saxon kings of England. Matilda, the wife

of Henry I. was a descendant of these kings. From this pair the line continued to Richard III., and then came Henry VII. who was descended from Edward III. After the death of Elizabeth, James VI. of Scotland, a descendant of Henry VII., succeeded, and his granddaughter, Sophia, was the mother of George I. Since then descent has been in the direct line. The line of succession is now (1932) the Prince of Wales, Duke of York, the Princess Elizabeth, the Princess Margaret, the Duke of Gloucester, Prince George and the Princess Mary and her children.

Royal Household Inclusive term denoting the attendants of the sovereign. In England it consists of the Lord Steward's department, the Lord Chamberlain's department, and the department of the Master of the Horse. The Lord Steward and the Lord Chamberlain are always peers and members of the government. The Lord Steward's department includes the Treasurer, Comptroller, Master of the Household, Almoner and Paymaster of the Household, and the Lord Chamberlain's consists of the Vice-Chamberlain, Master of the Ceremonies, the Gentleman Usher of the Black Rod (q.v.), Lords and Grooms-in-waiting, and others, including the Dean of the Chapels Royal and other attendants, religious, medical and for the arts. The Master of the Horse, who has charge of the horses and hounds of the sovereign, has under him equerries and pages-of-honour. There is also a Privy Purse department, consisting of the king's personal staff.

Other members of the royal family have their own households, that of the queen consort being under a lord chamberlain and including, among others, a mistress of the robes, ladies of the bedchamber and maids-of-honour.

Royal Society English learned society, the chief of its kind. It was founded in 1645, and received a charter from Charles II. in 1660. It has had its headquarters in various places, including Wadham College, Oxford, but since 1857 has been at Burlington House, London, W.C. The society holds meetings, gives medals and in other ways encourages scientific research. Its membership (F.R.S.) is a coveted distinction and its president is usually one of the great scientists of the day.

The Royal Society of Edinburgh fulfils a like purpose in Scotland. It was founded in 1739. Its headquarters are at 22 George Street, Edinburgh, and its members are known as F.R.S.E. or F.R.S. (Edin.).

Royat Inland watering place of France. It is near Clermont-Ferrand in the Puy-de-Dôme district, and stands high amid the mountains. Its waters, known to the Romans, are arsenical, chalybeate and alkaline.

Royston Urban district and market town of Hertfordshire. It is 12 m. from Hitchin, on the L.N.E. Rly. Its church belonged to an Augustinian priory. James I. had a palace here, and near the town a hermit's cave was found in 1742. Pop. (1931) 3831.

Royston Urban district of Yorkshire. It is 4 m. from Barnsley, on the L.M.S. Rly. The main industry is woollen manufacture. Pop. (1931) 7156.

Royton Market town and urban district of Lancashire. It is 3 m. from Oldham, on the L.M.S. Rly., and is a centre of the cotton manufacture. Pop. (1931) 16,687.

Ruabon Town of Denbighshire. It is 5 m. from Wrexham, on the G.W. Rly. There are some manufactures and around are coal mines. Pop. 3386.

Ruanda District of Africa. It lies between Tanganyika and Uganda, and is governed by Belgium under mandate from the League of Nations. Before 1919 it was part of German E. Africa. Nianza and Kigali are the chief places. With Urundi its area is about 16,000 sq. m., and the population is about 370,000.

Rubber Elastic substance also known as caoutchouc. It is derived from the milky latex of various tropical trees, the chief commercial kind, Para rubber, being from a species of Hevea, a euphorbiaceous genus. Ceara rubber is derived from another genus, *Manihot*, while Assam rubber is chiefly the latex of *Ficus elastica* belonging to the Moraceae. Rubber, chemically consists of a mixture of resins, hydrocarbons, water and other substances.

Formerly S. America was the chief source of rubber, but Hevea trees are cultivated now in immense plantations in Malaya, the E. Indies, Ceylon and other countries. The trees are tapped when about five years old by making incisions in the bark, the latex being collected in cups. The crude rubber is formed into sheets or crepe for export, and its strength and elasticity are improved by vulcanisation. Rubber enters in some form into most industries and, as ebonite, or vulcanite, has many uses in electrical, chemical and similar trades.

Rubble Small undressed blocks of stone of various shapes and sizes used in masonry. In rubble work for walls the stones in some cases are slightly dressed with the hammer and laid unevenly. In many ancient walls the outer surfaces were of ashlar or dressed stone in proper courses, with the middle space filled with rubble.

Rubefacients Group of medicinal substances. When applied to the skin they cause a slight temporary congestion or dilatation of the superficial capillaries, producing a reddening effect. They are used as a counter-irritant in inflammation of the deeper structures. Among rubefacients in common use are mustard, turpentine, chloroform, pepper, hot fomentations and friction.

Rubens Peter Paul. Flemish artist. He was born at Siegen in Westphalia, June 29, 1577. His father was a citizen of Antwerp, and in that city the son settled when only ten years old. His father being then dead, he lived with a family called Lalain, and there began to study art. He worked under several great painters, and spent some years in Venice, Rome, Milan and other Italian cities. In 1608 he returned to Antwerp where he lived until his death, May 30, 1640. Though primarily occupied in painting, he found time to go on missions for the Dutch Government to Madrid, London and elsewhere.

Rubens was the greatest painter of his day, and one of the greatest of all time. He painted about 1250 pictures, of which over 30 are in the National Gallery, London. The works in Antwerp, notably those in the cathedral, are perhaps his masterpieces.

Rubicon Small river of Italy. At one time it formed the boundary between Italy and Gaul. In 49 B.C., Caesar

crossed it and so gave the signal for civil war, and to-day the phrase "crossing the Rubicon" is used as a synonym for any decisive step.

Rubinstein Anton Gregorovich. Russian musician. Born Nov. 28, 1829, in Bessarabia, he studied music in Moscow, Paris and Berlin. As a boy he attracted the attention of Chopin and Liszt. In 1858 the tsar appointed him court pianist, and in 1862 he founded a conservatoire of music in St. Petersburg. This he conducted for some years, but he also found time for tours in England and the United States, where he became very popular. He was in Russia when he died, Nov. 20, 1894. Rubinstein wrote much music for the piano, as well as many operas. He left some *Memoirs*.

Rubric Order to the clergy about the conduct of services. Originally rubrics were written or printed in the old service books in red, hence the name (Lat., *rubra*, red). In the English Book of Common Prayer the rubrics are usually printed in italics.

Ruby Transparent variety of corundum coloured red by ferric oxide. When pure in colour and flawless, the ruby comes next in value to the diamond, and is of greater value when of large size and of a bright carmine shade known as "pigeon's blood." The best rubies are found in crystalline limestone in Burma, also in gem gravels in Ceylon and Siam. Many so-called rubies are garnets, spinels or tourmaline.

Rudd (*Leuciscus rhythrophthalmus*). Small freshwater fish. It has red fins and eyes, and is known also as the red eye. Like a roach in appearance, it is common in British rivers, and usually weighs about 1 lb., but is seldom used for the table.

Rudyard Lake of Staffordshire. It is near Leek and is 2 m. long, being the largest sheet of water in the Midlands. It serves as a reservoir for the Trent and Mersey Canal. The village of Rudyard is on the edge of the lake.

Rue (*Ruta graveolens*). Perennial plant. Of shrub-like growth, it has small bluish-green leaves and clusters of yellowish flowers. The leaves are bitter and contain an oil used for medicinal purposes. Rue is also known as herb of grace.

Ruff Small bird found in Europe and Asia. At one time it was common in the marshy districts of England. It is migratory, moving southwards to the Mediterranean region in the cold weather. The ruff is about 12 in. long and its plumage is mottled brown, grey and black. In the breeding season the male grows tufts of feathers on both sides of the head, and a broad ruff of feathers on the throat. The female, called the reeve, lays its eggs in a nest of coarse grass placed among rushes.

Ruffe (*Acerina cernua*). Small freshwater fish. Allied to the perch, it is about 6 in. in length, and has only one dorsal fin; its food consists of worms and insects. It is also known as the pope.

Rufford Abbey Seat of Lord Savile. It is 2 m. from Ollerton, Nottinghamshire, and occupies the site of a Cistercian abbey founded in 1148. When the monasteries were dissolved, the estate passed to the Talbots and then to the Saviles. The first house was built about 1648; the present one is modern in the



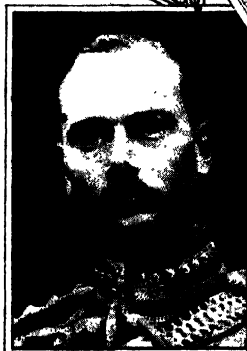
H.R.H.
THE PRINCE
OF WALES



H.R.H.
THE DUKE
OF YORK



*Her Majesty
the Queen*



H.R.H.
THE DUKE OF
GLOUCESTER



H.R.H.
PRINCE GEORGE



H.R.H. PRINCESS MARY
COUNTESS OF AIREDALE

THE ROYAL FAMILY.

[Vandyk]

Jacobean style. The earlier one was the home of the Marquess of Halifax, who passed here the days of his retirement. In 1784 it came to the Earl of Scarborough, and in 1856 was bequeathed to John Savile, a natural son of the 8th Earl of Scarborough. He was made Baron Savile, and the abbey remained the residence of his successors in the title until 1932, when it was closed.

Rufiji River of Africa. It rises in Nyasaland and flows through Tanganyika to the sea opposite the island of Mafia. Its course is mainly N.E. and E., and parts of it are navigable. In July, 1915, the German cruiser *Königsberg* was destroyed in the river.

Rugby Borough and market town of Warwickshire. It stands on the Avon, 82 m. from London and 30 from Birmingham, and is an important junction on the L.M.S. and L.N.E. Ryys. The chief buildings are the churches of Holy Trinity and St. Andrews and the hospital of St. Cross. The principal industry is engineering. Cattle and sheep fairs are held. Rugby was made a borough in 1902. At Hillmorton, near the town, is the G.P.O. Transatlantic Telephone Station.

Rugby School is one of the great English public schools. It was founded in 1567 by Lawrence Sheriff, and until the 19th century was a small grammar school. Its present site was bought in 1740, and in 1809 the existing buildings were begun. In 1827 Thomas Arnold became head master, and under his direction the school took a prominent place. The buildings now include a chapel, observatory, museum, library and laboratories. There is accommodation for about 600 boys. The school is governed by trustees and is divided into three blocks. There is a war memorial, part of which consists of scholarships for the sons of old boys who were killed. Rugby gives its name to a form of football and a form of five, and the school has been immortalised in Thomas Hughes' story, *Tom Brown's School-days*.

Rugby Union Association controlling football as played according to Rugby rules. There is an association in each of the four countries, England, Scotland, Ireland and Wales, all of which are represented on an international board responsible for the rules. The English union was founded in 1871, and the others at later dates. The union, which is confined to amateurs, owns the ground at Twickenham, where its headquarters are.

Rugeley Urban district of Staffordshire. It is 124 m. from London, on the L.M.S. Ry. The industries are agricultural, and near are coal mines. Pop. (1931) 5263.

Rugen Island of the Baltic Sea. It belongs to Germany, and covers 373 sq. m. Divided from Pomerania by the narrow strait of Strelasund, it is a summer holiday resort. The inhabitants are chiefly engaged in fishing and rearing cattle. Bergen is the capital. From 1648 to 1815, when it was ceded to Prussia, the island was a Swedish possession. Pop. 49,000.

Ruhr River of Germany. A tributary of the Rhine, it flows through Rhenish Prussia to fall into the larger river at Ruhrort. It is 145 m. long and the last 45 m. of its course are canalised. It flows through a great industrial district, in which are Essen and other iron and steel manufacturing centres.

In Jan., 1923, as the Germans failed to pay the money agreed upon as reparations, the French occupied the Ruhr district. This led to trouble, as the German inhabitants refused to work. Though this difficulty was overcome, the French remained in the region until 1925. The British took no part in the occupation.

Ruislip District of Middlesex. It is 13 m. to the N.W. of London, on the Metropolitan Ry. A residential area, its population has greatly increased in recent years.

Rule Controlling principle or regulation. The term is found in the rules of a game or of a society. It is also used for the regulations (rules of court) that govern the procedure in a court of law. The regulation of a monastic order is known as its rule, e.g., the rule of S. Benedict.

The rule of the road consists of regulations laid down by convention or sometimes by law, to facilitate the movement of traffic. In Great Britain the rule for vehicles is to keep to the left and to pass a vehicle in front on the right. In France, Germany and other parts of Europe, also in the United States, the rule is to keep to the right. Pedestrians in crowded streets should keep to the left.

At sea the rule of the road is for ships to pass port to port, port being the left-hand side. A red light shows the port side and a green the starboard. The jingle used by sailors is, "Green to green, or red to red, perfect safety, go ahead." Steamers give way to sailing ships. There is also a rule of the road for aircraft.

Rum Spirit distilled from diluted cane sugar molasses which have been fermented by the action of a yeast. Inferior grades are distilled from the skimmings of the pans, fresh cane juice, etc., and in France from beet molasses. It is coloured with caramel or by storing in sherry casks, and its aroma is increased by age. Jamaica, Demerara and Martinique are the chief centres of rum manufacture. • A liqueur known as rum shrub is made from rum, sugar and lime juice.

Rum Island of Scotland. It is one of the Hebrides, and belongs to the county of Inverness. It covers 42 sq. m. The soil is poor and the only inhabitants are a few crofters and fishermen. The mainland is 15 m. away.

Rumania Kingdom of Europe. It occupies a piece of land between Ukraine, Poland, Hungary, Yugoslavia and Bulgaria, with a coastline on the Black Sea. It consists of Moldavia and Wallachia, the original Rumania, to which, in 1918-19, were added Bessarabia, Bukovina and Transylvania. The surface is hilly in parts, but mainly a plain. The rivers include the Sereth, Pruth, Jiu, Arges and Aluta, while the mouth of the Danube is here. The Dniester forms the N. boundary. The area is 122,282 sq. m. Pop. 17,393,149.

The capital of Rumania is Bucharest; other large places are Czernowitz, Yassy and Galatz. Galatz, Braila and Constantza, are the chief ports. Agriculture is the main industry. Maize, wheat and barley are grown, and there are large forest areas. Much oil is produced; salt is a state monopoly, and there are coal mines. The country has a national bank, and uses the metric system of weights and measures. There is an army raised by compulsory service and a small

navy on the Black Sea. The people belong to the Greek Church, there being a national orthodox church of Rumania under two metropolitans.

Rumania is governed by a legislature of two houses. One is the chamber of deputies, the members being elected by all adults. The second chamber is the senate which consists of elected and life members, bishops and others. The executive is in the hands of a council of ministers under a premier.

In 1859 Moldavia and Wallachia, then part of Turkey, were united under a hospodar, or lord. In 1861 he became Prince of Rumania and ruled as a vassal of Turkey until 1866, when Carol, a Hohenzollern prince, was chosen as ruler.

In 1878 Rumania became independent of Turkey, and in 1881 Carol took the title of king. He died in 1914 and was succeeded by his son, Ferdinand, during whose reign Rumania entered the Great War on the side of the Allies. In 1927 Ferdinand died, and his son Carol having renounced the succession, a grandson, Michael, became king. In 1930, however, Carol returned from his retirement and the legislature accepted him as king in place of his son Michael.

Rumelia Eastern. District of Bulgaria. In the S. of the country, it lies along the valley of the Maritza. Philippopolis is the chief town and Burgas, on the Black Sea, the chief port. Long part of the Turkish Empire, it was united with Bulgaria in Sept., 1885. See BULGARIA.

Rumford Kennerley. English singer. Born in London, Sept. 2, 1870, he was educated at King's School, Canterbury. He studied singing in Paris and London, and in 1887 first appeared in London. Possessing a beautiful bass voice, he was for the next 30 years one of the most popular singers in the country. In 1900 he married Clara Butt (q.v.).

Ruminant Type of ungulate mammals. They chew the cud and have the stomach divided into three portions. The unchewed food is passed into the paunch where it becomes macerated; it is then returned to the mouth for thorough mastication, and again swallowed for digestion in the second and third stomach chambers. Cattle, sheep, goats and deer are ruminants.

Runciman Walter. English politician. He was born at S. Shields, Nov. 19, 1865, the son of a wealthy shipowner, Sir Walter Runciman. After passing through Trinity College, Cambridge, he joined his father in business, and between 1924 and 1929 held some of the chief positions in the shipping industry. In 1899-1900 he was Liberal M.P. for Oldham, and from 1902-18 for Dewsbury. In 1924 he was elected for Swansea West, and in 1929 and 1931 for the St. Ives division. In 1898 he married Miss Hilda Stevenson, who was Liberal M.P. for St. Ives, 1928-29.

In 1905 Runciman was made Parliamentary Secretary to the Board of Trade, and in 1907 Financial Secretary to the Treasury. From 1908-11 he was President of the Board of Education, from 1911-14 of the Board of Agriculture and from 1914-16 of the Board of Trade. Although a free trader he expressed himself in favour of some kind of tariff reform during the economic crisis of 1929-31, and was one of the Liberals who broke away from the leadership of Lloyd George. In 1931 he took

office as President of the Board of Trade in the National Ministry; he was largely responsible for the import duties imposed in 1932, and represented Great Britain at the Ottawa conference.

Runcorn Market town, urban district and river port of Cheshire. It is on the Mersey and the Manchester Ship Canal, 16 m. from Liverpool and 28 from Manchester, on the L.M.S. Ry. Chemicals and soap are made, and for the shipping there are ample docks. A transporter bridge across the Mersey connects the town with Widnes. Pop. (1931) 18,158.

Rune Character in the old Scandinavian alphabet. This had at first 24 characters, but was later reduced to 16. Having no curves, they were well adapted for carving on stone, and stone inscriptions in Runic characters are still found, one or two being on crosses in Great Britain. Runes were inscribed on bone and metal and sometimes on coins.

Runge Island in the Bay of Riga. It belongs to Estonia, and on it about 200 people are occupied in fishing and farming. For about 1000 years they and their ancestors have lived on communistic principles, there being no private property except clothing and personal belongings. Each farm consists of narrow strips scattered over the island. The community elects its own officials to see that the island customs are safeguarded.

Running Form of sport and exercise since very early times. The Greeks were, perhaps, the first to popularise it, when they included it among the contests at the Olympic Games. To-day running is divided into the following classes:

- The sprint, or short distance, where the start is of paramount importance.
- Middle distances, which require more endurance and running skill.
- Long distances, which may be anything from 3 m. and upwards, and where a high level of training and a sound knowledge of timing are essential.

Steeplechasing and cross-country, relay and team racing are all popular varieties.

Runnymede Field near Egham, Surrey. It is on the S. side of the Thames, 20 m. from London. Here in 1215 King John is believed to have signed Magna Carta, although the event may have taken place on Charter Island in the river. Magna Carta house has been built on the supposed site. The field, or mead, is the property of the National Trust.

Rupce Monetary unit of India. It is a silver coin worth normally 1s. 6d. in English money. It is divided into 16 annas. It also circulates in Ceylon, British E. Africa and Mauritius.

Rupert German prince and English soldier. A son of the elector palatine Frederick V. and Elizabeth, daughter of James I., he was a nephew of Charles I. He was born at Prague, Dec. 17, 1619, and when little more than a boy became a soldier. In 1642 he came to England to assist Charles, and made a reputation as a cavalry leader, the impetuous charges of his men being very successful until Cromwell organised his force.

In 1648 Rupert went to sea in command of the fleet, and did good service in this capacity until defeated by Blake off Malaga in 1650. He returned to England in 1660 and, a man

of considerable gifts, left his mark in two spheres of activity. He had something to do with the colonisation of the great area named after him, Rupertland, and he introduced into England the mezzotint process of engraving. He died Nov. 29, 1832.

Another Rupert was, until 1818, crown prince of Bavaria. Owing to his descent from Charles I., he is regarded by legitimists (*q.v.*) as the rightful king of England. In the Great War he commanded an army on the western front.

Rupert's Land Old name for the part of Canada that lies around Hudson Bay, and is now known as part of the N.W. Territories. It was long the property of the Hudson Bay Company, but was sold in 1867, and is now divided between the N.W. Territories and the provinces of Ontario, Manitoba, and Quebec. The Anglican Church in Canada calls one of its heads the Archbishop of Rupert's Land.

Rupprecht of Bavaria, Prince. He was born at Prague on Dec. 17, 1619, a nephew of Charles I. and son of Frederick V., Elector Palatine. During the Civil War he fought on the Royalist side at Edgehill, Marston Moor and Naseby. After the Restoration he rose in favour at the court, and commanded a fleet for Charles II. He died at Westminster, Nov. 29, 1682.

Rupture Term used in two senses by medical men. In one it is another name for hernia, or the protrusion of a part of the body through an abnormal opening. See HERNIA.

The other rupture is a breaking or a bursting, as the rupture of a blood vessel.

Rural Dean Clerical official in the Church of England. Rural deans existed in the Christian church in early times, but disappeared during the Middle Ages. Their duties were to assist the bishops. In the Church of England they were revived in the 19th century. Each diocese is now divided into rural deaneries. Rural deans assist the bishops in pastoral matters, leaving business affairs to the archdeacons.

Rush Genus of plants, mainly perennials. The botanical name is *Juncus*. Rushes grow in temperate and cold climates and in wet and sandy soil, and are distinguished by their long, straight, smooth stems. They bear small flowers in clusters, and the stems are either hollow or filled with a white pith. Rushes were long used for lighting purposes. To-day they are gathered chiefly for plaiting into mats and similar articles.

Rushden Urban district of Northamptonshire. It is 66 m. from London and 4 from Wellingborough, on the L.M.S. Rly. The main industry is the manufacture of boots and shoes. Pop. (1931) 14,247.

Ruskin John. English art critic and author. He was born in London, Feb. 8, 1819, and educated at Oxford, winning the Newdigate Prize in 1839. His autobiography, *Præterita*, tells the story of his early days. From 1869-79 he was Slade Professor of Art in Oxford. *Modern Painters*, begun in 1840, is an elaborate treatise on the principles of art which excited much controversy, but Ruskin's opinions ultimately prevailed. His collected works fill 39 volumes and treat not only of art, but political economy, Greek myths, home industries, wayside flowers and

so on. Among his outstanding books are *Seven Lamps of Architecture*, *Sesame and Lilies* and *The Stones of Venice*. He died Jan. 20, 1900. Ruskin College was founded in Oxford in 1899 to provide working-class students with opportunities for the study of social service.

Russell Famous English family. It is descended from Henry Russell, who was M.P. for Weymouth in the 15th century. A descendant, John Russell, became a courtier. In 1539 he was made a baron, and about this time obtained much of the land taken from the monasteries, notably Covent Garden in London, and estates in Devon and Bedfordshire. Other estates, including Chenies, came to him by marriage. In 1550 John was made Earl of Bedford, and in 1694 a later earl was made a duke. This title is still held by the Russells, and branches of the family hold the titles of Earl Russell and Baron Amphil. See BEDFORD, DUKE OF.

Russell Earl. English statesman. John Russell, a son of the Duke of Bedford, was born Aug. 18, 1792, and entered Parliament at the age of 21, identifying himself with the parliamentary reform movement. The first Reform Bill of 1832 was the work of "Lord John" and four other members of the Liberal Government. He served in Lord Grey's ministry in 1830, and later was Home Secretary under Melbourne.

In 1836, after being converted to the support of the repeal of the Corn Laws, he succeeded Peel as Prime Minister of a Whig government. He was then Foreign Secretary in the coalition under Lord Aberdeen (1851). His bad management of the Crimean War made him unpopular, and he resigned, returning as Foreign Secretary under Palmerston in 1859. He was created Earl Russell in 1861, and was again Prime Minister in 1865. After his defeat in the same year, he lived in retirement at Richmond. His written works include recollections and studies of the members of the Russell family. He died May 28, 1878.

Russell Earl. English scientist. Born at Monmouth, May 18, 1872, Bertrand Arthur William Russell was the younger son of Viscount Amberley and a grandson of the 1st Earl Russell. He went to Trinity College, Cambridge, where he became a Fellow and lecturer; but later he settled in London and devoted himself to social and political work. He married Dora, daughter of Sir F. W. Black, and in 1930 succeeded his brother in the title.

As a philosopher and mathematician Russell is in the first rank, though he is a destructive rather than a constructive thinker. In the sphere of mathematical philosophy, he is without a rival in Great Britain. He has written much on philosophy and also on social questions, his books including *Principles of Social Reconstruction*, *Mysticism and Logic*, *The Analysis of Matter and Roads to Freedom*. His shorter works include *The A.B.C. of Relativity*, *Why I am not a Christian*, *Marriage and Morals* and *The Conquest of Happiness*. Not unfairly his ideas in all these fields may be described as revolutionary, while his fearlessness and honesty are unquestioned. A member of the Labour Party, he stood for Parliament, but failed to secure election.

Russell Lord William. English politician. A younger son of the 1st Duke of Bedford, he was born Sept. 29,

1639, and studied at Cambridge. He entered the House of Commons in 1660, and later made himself conspicuous by his opposition to a proposal to exclude James II. from the throne. In 1683 he was arrested for his share in the Rye House Plot (q.v.), and on July 21, 1683, he was beheaded for treason. His guilt was by no means certain, and the Whigs looked upon him as a martyr in the cause of civil and religious liberty. A memorial has been erected on the place of his execution in Lincoln's Inn Fields, London, W.C. Russell married Rachel Wriothesley, daughter of the Earl of Southampton.

Russell of Killowen Baron. Irish lawyer. Born at Newry, Nov. 10, 1832, Charles Russell was educated for the law and became a solicitor. He soon abandoned this for the higher branch of the legal profession, and in 1859 became a barrister in England. He practised in Liverpool before settling in London. In 1880 he was elected M.P. for Dundalk, and in 1885 for S. Hackney. In 1886 he was appointed Attorney-General in the Liberal Ministry and was knighted. He was again Attorney-General in 1892-94 and had much to do with drafting the home rule bills. In 1894 he was made a Lord of Appeal and a life peer, but almost immediately became Lord Chief Justice and received an hereditary peerage. He died Aug. 10, 1900, leaving five sons. The eldest, the 2nd baron, became a judge and later a Lord of Appeal. Russell was an ardent Roman Catholic and a great patron of the turf.

The greatest advocate of his day, Russell's great cases include his defence of Parnell before the commission and his defence of Mrs. Maybrick. He was concerned in the arbitration about the Bering Sea fisheries and the Venezuelan boundary and he presided at the trial of Dr. Jameson and his associates in 1896.

Russell William Clark. English novelist. Born in New York, Feb. 24, 1844, he was a son of Henry Russell, who wrote "Cheer Boys, Cheer," and other popular songs. He passed a few years in the merchant service, but left it in 1866 and took to writing. He wrote much for the papers, but is best known by his novels. They number about 50 and deal with life and adventure at sea. *The Wreck of the Grosvenor* and *List, Ye Landsmen* may be mentioned. Russell died at Bath, Nov. 8, 1911.

Russell Sir William Howard. English war correspondent. Born, Mar. 28, 1821, in Ireland, he was educated at Trinity College, Dublin. He joined the staff of *The Times* and in 1854 was sent out to the Crimea. There he made his reputation by his despatches, which described the horrors undergone by the British troops and led to measures for alleviating them. He went next to India to describe the Mutiny and then to America for the Civil War. He represented his paper during the Austro-Prussian War of 1866 and the Franco-Prussian War of 1870-71. In 1879 he was in South Africa describing the campaign against the Zulus. Knighted in 1895, Russell died Feb. 10, 1907.

Russia Country in Europe and Asia, the successor of the empire of Russia, and now controlled by the Union of Socialist Soviet Republics. Its area is 8,241,921 sq. m. It is divided into Russia proper, or the Russian Socialist Federal Soviet Republic, and six other republics, namely, White Russia, Ukraine, Transcaucasia, Turkmenistan, Uzbekistan and

Tajikistan. European Russia extends from the Arctic Ocean to the Caucasus and from Poland to the Urala. Asiatic Russia includes Siberia from the Urala to the Pacific, a vast district in central Asia, stretching eastward from the Caspian and some parts of Asia Minor. The population (1931) is estimated at 161,000,000.

Of this immense area Russia proper covers 7,626,717 sq. m. and contains 11 autonomous republics and 15 autonomous regions. In Ukraine is one autonomous republic, Moldavia. Moscow is the capital of the union and its largest city. The next largest are Leningrad, Kiev, Baku, Odessa, Kharkov and Tashkent.

The republic is governed by Soviets, at the head of which is the all-Russian Congress of Soviets which consists of representatives of the provincial congresses of Soviets and of the town Soviets. The executive authority is in the hands of a council of people's commissaries, each member being responsible for one of the departments of state. They are elected by the congress. The right of voting for the Soviets is granted to all over 18 years of age, except employers, those who live on unearned incomes, priests and certain others. These may, however, vote under special conditions. The church has been disestablished, but the exercise of their religion is permitted to all. Education is compulsory. There is an army, called the Red Army, raised by universal service, a small navy and an air force.

Russia is an agricultural country and most of the people work on the land. The majority of the farms are under collective control, though a proportion still retain their peasant owners. Manufacturing industries have been started in some places and are worked on a very large scale in accordance with the five year and other plans prepared by the rulers. They are controlled by trusts, including the rubber trust, silk trust and others. The chief minerals produced are coal and oil. Foreign trade is a monopoly of the state and all imports and exports are strictly controlled.

The standard coin is called the chervonetz. It is valued at 7.30 to the £ sterling. The metric system of weights and measures is in force. The country has its own calendar: five days make a week, six weeks a month, and twelve months a year. The five or six extra days are kept as festivals to celebrate the revolution.

The Russian empire began as a collection of principalities with Moscow as its capital. The first to take the title of tsar was Ivan in 1547. Of his successors the greatest were Peter, who founded St. Petersburg, which became the capital, and introduced modern ideas into the country, and Catherine II. Catherine and her successors greatly extended the area of Russia, first in Europe and then by acquiring Siberia and other districts of Asia. In the Napoleonic age and later the country ranked as one of the Great Powers.

In spite of much unrest the empire of the tsars lasted until 1917. Dissatisfaction with the sufferings caused by the Great War brought matters to a head, and in March, 1917, a socialist republic was established. This was replaced later in the year by the Bolshevik or Soviet régime in which Lenin (q.v.) and Trotsky were the dominant figures, and which has since controlled the country. Peace was made with Germany, and later certain parts of Russia became independent states, as Finland, Poland, Estonia, Latvia and Lithuania. The last tsar, Nicholas II., and his family were murdered at Ekaterinburg, July 16, 1918.

Russo-Japanese War

War caused by the threat to Japan involved in Russia's ambition to become a naval power in the Pacific. It was begun by Japan, Feb. 8, 1904, with a successful attack on the Russian fleet at Chemulpo and Port Arthur. On April 3 an engagement on the Yalu River ended in a complete rout of the Russian force. In August about the Russian fleet at Port Arthur and the Vladivostok squadron both suffered reverses. By October the Russian army under Kuropatkin had been driven back on Mukden after four days of continuous fighting. January witnessed the handing over of Port Arthur to the Japanese, and in March a decisive battle between the rival armies at Mukden resulted in the capture of that town, with heavy losses on both sides.

The Russian resistance was finally broken on May 27, when the remnant of her fleet under Rozhdestvensky was routed. Peace was signed, Sept. 5, 1905, at Portsmouth, U.S.A., when Russia secured surprisingly favourable terms. Russian casualties were estimated at 385,000 and Japanese at 167,000.

Russo-Turkish Wars

The war of 1827-9 was due to Sultan Mahmoud II's cruel treatment of insurgent Greeks, which united Britain, France and Russia against him. The fleets of the three powers destroyed the Turkish navy in the harbour of Navarino, 1827, and the victorious Russian army advanced as far as Adrianople, where the Sultan was forced to acknowledge by Treaty, 1829, the independence of the Greeks.

Another war arose in 1853 owing to the rejection by the Sultan of the claim made by Czar Nicholas I. to be recognised as protector of the "Greek" Christians in Turkey. The Turks won a surprising victory at Sinope, but their fleet was destroyed at Sinope. Turkey's Eastern allies were successful in the Crimea and by the Peace of Paris (1856) Russia was temporarily crippled.

Again in 1877 she declared war on the Porte, captured Plevna after a brilliant defence, and within eight of Constantinople dictated the terms of the Treaty of San Stefano (1878), which ended Turkish rule in Europe.

Rust

Reddish-brown, hydrated oxide formed on iron in water or by exposure to moist air. The presence of carbonic acid in water or the atmosphere will promote the formation of rust, the carbonic acid possibly acting as a catalyst, or the action of rusting may be electrolytic in character. Experiments show that pure iron does not rust in pure water, even when oxygen is present. When rusting has once started the process continues as the oxide is hygroscopic.

Rustenburg

Town of the Transvaal. It is 60 m. by rly. from Pretoria and the centre of an orange and tobacco-growing district. Behind the town are the Magaliesberg Mts. Pop. 1700 (whites).

Ruth

Character in the Old Testament. She was a Moabitess and married a certain Mahlon, who, with his father and mother, Elimelech and Naomi, had come to Moab from Bethlehem. The two men died and Ruth was left widowed. She went back to her own country and Ruth went with her. There she married a kinsman, Boaz, and from the pair Jesse and David were descended.

The Book of Ruth is one of the shortest

but most moving in the Bible. It dates from the time of the Judges, but the author is unknown.

Ruthenes

Word used for the Ukrainians found in Poland, Czechoslovakia and other parts of that region, especially Galicia and Bukovina. Before the Great War they were under and Austro-Hungarian rule. They numbered about 4,000,000. The district in Czechoslovakia in which many of them live is called Ruthenia. It has a certain amount of self-government. The Ruthenes belong to the Uniate church in connection with Rome and are under an archbishop at Lemberg.

Rutherford

Ernest Rutherford, Lord Nelson, New Zealand, Aug. 30, 1871, he studied at the University of New Zealand. He became Professor of Physics at McGill University, Montreal, in 1898, at Manchester, 1907, and Cambridge, 1919. His researches established the existence of radio-active transformations, the nucleus nature of the atom, and the electrical structure of matter. He was awarded the Nobel Prize for Chemistry in 1908, was knighted in 1914, awarded the O.M. in 1925, and created Baron Rutherford in 1931.

Rutherglen

Burgh of Lanarkshire. It stands on the Clyde, 2 m. from Glasgow, on the L.M.S. Rly. The industries include the making of chemicals. It is the oldest royal burgh in Scotland, founded in 1126. Pop. (1931) 35,157.

Ruthin

Borough and market town of Denbighshire. It is situated on the Clwyd, 215 m. from London and 8 from Denbigh, on the L.M.S. Rly. The chief building is St. Peter's church, which has cloisters. The castle occupies the site of the one built by the English in the 13th century. Pop. (1931) 2912.

Ruthven

Baron. Scottish title borne by the family of Horwath. In 1488 Sir William Ruthven was made a Lord of Parliament. William, the 4th lord, who, in 1581, was made Earl of Gowrie, was responsible for the seizure of James VI., which is called the Raid of Ruthven. With some associates he took the young king to his castle at Ruthven and for a short time ruled the land in his name. Soon, however, James was released and in 1584 Ruthven was executed for high treason. The title then became extinct, but in 1651 it was given to Sir Thomas Ruthven, from whom the present holder is descended.

Ruthwell

Village of Dumfriesshire. At one time a burgh, it is 5 m. from Annan, on the L.M.S. Rly. It is famous for its 7th-century cross, restored in 1802, on which are carvings of the crucifixion and, in runic letters, some verses of one of Caedmon's poems.

Rutland

Smallest county of England. It covers only 152 sq. m. and is wholly inland. It is an agricultural area, fairly level, and famous as a hunting shire. Oakham is the county town; Uppingham is the only other place of importance. With the Stamford division of Lincolnshire, it sends a member to Parliament. It is in the diocese of Peterborough. Pop. (1931) 17,397.

Rutland

Duke of. English title borne by the family of Manners. Richard Plantagenet, the Duke of York, who was killed in 1461, was Earl of Rutland and through his daughter he was the ancestor of Thomas

Manners, who was made Earl of Rutland 1525. He received lands in Leicestershire and a later earl married Dorothy Vernon and obtained lands in Derbyshire. John, the 8th earl, was made Duke of Rutland in 1703.

Charles, the 4th duke, was Lord Lieutenant of relayed under Pitt. John James Robert, the 7th duke (1818-1906) when Lord John Manners sat in the House of Commons for many years and was a member of the various Tory governments between 1851 and 1892. He died Aug. 4, 1906, and his son and then his grandson succeeded to the title. The duke's eldest son is called the Marquess of Granby. His seats are Belvoir Castle in Leicestershire and 1 Hallam Hall in Derbyshire.

Ruwenzori Range of mountains in East Africa. They are in Uganda, between Lakes Edward and Albert, and extend for about 70 m. The highest peaks rise about 16,000 ft. The range was discovered by H. M. Stanley and may be the Mountains of the Moon, mentioned in ancient fables.

Ruysdael Jakob van. Dutch painter. He was born in Haarlem about 1628, and passed his life there, except for a few years in Amsterdam. He died Mar. 14, 1682. Ruysdael's pictures are chiefly of rural scenes around his home. There are examples in the National Gallery, London.

Ruyter Michael Adriaanszoon, de. Dutch seaman. Born at Flushing, Mar. 24, 1607, he became an officer in the Dutch service. In 1666 he was in command of the fleet that defeated the English ships off the North Foreland and sailed up the Thames and the Medway. In a fight off Sicily, against the French, he was wounded so seriously that he died at Syracuse, Apr. 29, 1676.

Rydal Water Lake of Westmorland. It is only about half a mile long, but is very beautiful and can be reached from Windermere. At the east end is the little village of Rydal, where are Rydal Hall and Rydal Falls. Rydal Mount, the home of Wordsworth from 1813 to 1850, is near the lake.

Ryde Borough and watering place of the Isle of Wight. A yachting centre, it is 10 m. from Newport, on the S. Ry., and is the chief port for visitors, having regular steamer services with Portsmouth, 4 m. away. Pop. (1931) 10,519.

Rye One of the five cereals. It will flourish on a poorer soil than any other cereal and is much grown as a food for cattle. The ears are also ground into flour and a bread called black bread is made from it. There are two kinds, summer rye and winter rye. The straw is suitable for thatching and for bedding. The world's production in 1931 was 185 million quarters, or about a third of the amount of wheat. This was chiefly produced in North America, although a good deal was grown in Russia, Germany, and Poland. In Great Britain and Ireland only 27,000 acres were under rye in 1931. Rye grass is grown for permanent pasture. There are several species, but the best are the Italian kinds.

Rye Borough of Sussex. It stands on a hill above the Rother, about 2 m. from the coast and 72 from London, on the S. Ry. Formerly one of the Cinque Ports, Rye is a place of unusual interest. The Lord Gate dates from the 14th century and St. Mary's church, a fine building, is older. The Press Tower, like the gate, is part of the old fortification. The town has the remains of two monasteries. The Mermaid Inn is notable. The sea has receded and consequently Rye is now of little consequence as a seaport, although in the Middle Ages it was one of the busiest in England. To-day an agricultural trade is done here and a new harbour has been built at the mouth of the Rother. Pop. (1931) 3,947.

Rye House House near Hoddesdon in Hertfordshire. Here, some discontented persons planned to murder Charles II. and his brother James as they were returning from Newmarket to London, in 1683. The plot failed, as warning was given. Some of the conspirators were taken and hanged. Lord William Russell and Algernon Sydney were also arrested, tried and beheaded though their guilt was by no means proved.

Ryhope Watering place and market town of Durham. It stands on the coast, 3 m. from Sunderland, on the L.N.E. Ry. Pop. 11,600.

Rylands John. English merchant. Born at St. Helena, Feb. 7, 1801, he joined his father and brother in a cotton manufacturing business at Wigan. The firm, Rylands & Sons, opened other departments and soon became one of the largest concerns in the textile trade. In 1841 John Rylands became head of the firm, which in 1873 was made a limited company. He died at Bedford Dec. 11, 1888, leaving no children, and his widow inherited a fortune of over £2,000,000.

In 1888 Mrs. Rylands bought for £250,000 the magnificent library of Earl Spencer at Althorp. To house it she erected in Deansgate, Manchester a Gothic building. An endowment was also provided and the collection has been enriched by other books and manuscripts, making it one of the most valuable in the country. It is called the John Rylands Library.

Ryswick Village of the Netherlands. It is 2 m. from the Hague. Here, in 1697, was signed the treaty which ended the war between Great Britain, Austria, Spain and their allies on the one side and France on the other. France surrendered all the lands taken since 1679, except the city of Strasbourg and received back Nova Scotia and her possessions in India. William III. was recognised as King of England and James II. compelled to leave France. England, Spain and the Netherlands signed the treaty with France on Sept. 20, 1697, but the representatives of Austria did not sign until Oct. 30.

Ryton Urban district of Durham. It is on the Tyne, 8 m. from Newcastle-on-Tyne, on the L.N.E. Ry. The industries are coal mining and the making of iron and steel. Pop. (1931) 14,204.

